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How Leaders Think: Measuring Cognitive Complexity in Leading Organizational Change

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HOW LEADERS THINK: MEASURING COGNITIVE COMPLEXITY IN LEADING ORGANIZATIONAL CHANGE

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Dedication

In memory of my late grandmother, Marija Resetic, who taught me the power of unconditional love and of my wonderful colleague, Michel Gessner, who helped me discover the art of and passion for teaching.

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Abstract

The ability to lead complex organizational change is considered the most difficult leadership responsibility. Habitual linear thinking based on sequential procedural decision making is insufficient when responding to ambiguous and unpredictable challenges and interpreting systemic variables in the context of unforeseen problems, risks, and invisible interrelationships. The purpose of this exploratory multiple case study was to expand our understanding of the structure of the thinking employed by executive leaders as initiators and enablers of complex, large-scale organizational change. The researcher integrated knowledge of adult cognitive development and organizational leadership to examine the higher forms of reasoning abilities required for dealing with the complex and nonlinear nature of change. By using Laske's (2009) dialectical thought form (DTF) framework, the researcher explored the existence of dialectical thinking through structural analysis of interviews with 10 senior leaders who successfully transformed their respective organizations. Specifically, the study explored: (1) To what degree do the sponsors of organizational change engage in dialectical thinking in their work? (2) Is complexity of thinking related to complexity of sponsorship roles? (3) What phase of cognitive development must sponsors of transformational change attain to become effective change agents? (4) Does a higher level of dialectical thinking lead to more effective sponsorship of transformational, complex change? The results revealed that all 10 effective leaders were fully developed dialectical thinkers and that each one had a unique pattern of dialectical thinking. Data illustrated how metasystemic thinkers, despite their surface similarities, have deep epistemological differences that indicate profoundly different areas of strength and developmental needs. The potential application of the DTF framework as a developmental tool for expanding cognitive capabilities to deal with complex change is addressed and explored. The

study opens an array of opportunities for another, richer way of looking at adult development.

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Chapter I: Introduction

"We can't solve problems by using the same kind of thinking we used when we created them" (Einstein as cited in Thinkexist.com, 2010, para. 1).

We live in a rapidly changing and interdependent world, much different from the work we experienced even 10 years ago. Neither traditional education and training nor our past experiences adequately prepare us for living in these complex times and systems. Inglis and Steele (2005) noted that effectively responding to societal challenges that exceed human capacity is part of the human evolutionary process. Our turbulent society and unceasing technological change create an unprecedented demand on leadership to seek innovative ways to lead change in organizations. A recent IBM Institute for Business Value (2010) global study of over 1,500 chief executive officers and public sector leaders from 60 countries identified complexity as the primary challenge, and the ability to cope with change as the most pressing concern. The study also revealed the leaders' skepticism over their own ability to manage complexity while identifying creativity as the most important leadership quality for the future.

In an increasingly complex world, organizational transformations involving profound cultural and operational change are inevitable and required for organizational survival and success. The challenges inherent in the unpredictable nature of constant change often test the limits of careful planning and any predetermined organizational transformation. Successful transformation demands effective change leadership. The speed and magnitude of the change imposes greater demands on leaders as they progress up the organizational ladder. Increasingly, the ability to respond to ambiguous and unpredictable challenges and deal with complexity affects leaders at all levels of organizational hierarchy (Day & Lance, 2004).

Capra (1996) suggested that today's problems reflect different facets of a single crisis—a crisis of perception rooted in an outdated worldview and "a perception of reality inadequate for dealing with our overpopulated, globally interconnected world" (p. 4). He stated that solutions to the major problems are available, but "they require a radical shift in our perceptions, our thinking, our values" (Capra, 1996, p. 4).

I have long been interested in organizational change—specifically, in understanding (a) why so few change initiatives achieve the intended outcomes and/or remain sustainable over a long period of time, and (b) what can be done to improve the odds for successful implementation of change initiatives. As a change management consultant, I experienced firsthand how the quality (or lack thereof) of a change process correlated with executive leadership members' perception and behavior as sponsors of particular change efforts. I worked primarily with sponsors of organizational change—senior leaders who assume the role of sponsoring a specific change initiative for a specific period of time until the project is complete. Sponsorship of change is defined as a very specific subset of leadership, a role usually entrusted to an executive leader who takes ownership of change, has the power to legitimize and sanction new change initiatives, and who has access to resources necessary to implement change (Conner, 1998; Harrison, 1999).

In spite of overwhelming evidence in the academic literature that a mechanistic approach to managing change is giving way to more sophisticated approaches to dealing with complex change, my workplace culture favored a rational, top-down, expert-driven, planned approach to change. In my experience, executives with resources and power to implement strategic change initiatives enacted their roles in a wide variety of ways. Some were deeply

involved in a change process; others delegated entire projects; while still others were invisible, inaccessible, or simply felt disconnected from the project teams.

I noticed patterns in the thinking of change sponsors that seemed to relate to the quality of their interactions and communication that ultimately appeared to impact the quality of the implementation process. These observations inspired my engagement in a study of change leadership with the goal of understanding the relationship between change leaders' attitudes toward change and the outcome of their change efforts. I examined the organizational change process through a variety of lenses, including different paradigms and fields of study. My professional experience, combined with my academic studies, led me to gradually narrow my interests and explore the role of executive leaders in the success or failure of change efforts.

Research Problem

Leaders sponsoring major organizational change initiatives work with highly complex environments. The interconnected and interdependent problems faced by these leaders "cannot be understood in isolation" (Capra, 1996, p. 3). Leaders must interpret systemic variables in the context of unforeseen problems, risks, and invisible interrelationships. Formal logical thinking based on sequential procedural decision making is sufficient at lower levels of work complexity such as project management, incremental process improvements, or reengineering efforts for optimized performance. However, such thinking is insufficient for successfully leading complex transformational projects because such work requires cognitive capabilities that transcend habitual linear thinking (DeVisch & Shannon, 2009; Inglis & Steele, 2005).

Current research within change management focuses on behavioral competencies and the personality attributes of change leaders and managers. Given the increased volume and complexity of change in recent years, a simplistic behavioral approach to understanding change

leadership is insufficient for addressing the qualitative changes in peoples' thinking required for dealing with the challenge. Understanding the deeper dimensions of leadership by connecting the fields of adult cognitive development, critical thinking, and business leadership is crucial for meeting these challenges. In spite of impressive research done on adult cognitive development, this field of inquiry has not been widely accepted in the business world (Day, Harrison, & Halpin, 2009). Thus, the current study connects adult cognitive development and organizational leadership to answer questions about the complexity of thinking required to lead complex, large-scale organizational change.

Purpose of the Study

The complex nature of transformation, coupled with the increasing need for critical thinking and reflective judgment, creates a unique space in which to identify, describe, and understand the leadership qualities of sponsors. Previous research approaches to change leadership examined leadership effectiveness by looking primarily at traditional content and style of leadership behaviors.

Level of mental complexity is a powerful factor with which an individual views a change initiative. This study responded to the call for better understanding of reasoning abilities at the level required for dealing with the unpredictable and nonlinear nature of change.

The purpose of this multiple case study was to expand our understanding of the structure of thinking employed by executive sponsors as initiators and enablers of complex, large-scale, organizational change. Specifically, this study explores the existence of dialectical thinking among the 10 study participants who successfully transformed their respective organizations with the intention to:

- Understand how individual sponsors of large-scale change make sense of their role and experiences.
- Find evidence of dialectical thinking among the 10 study participants by measuring the use of dialectical thought forms.
- Learn the extent to which individuals in a sponsorship role use dialectical thinking in their work.
- Identify patterns of thinking emerging across the 10 study participants that may lead to better understanding of what might differentiate effective sponsors from others.
- Test the usefulness of the dialectical thought form (DTF) framework for future studies and discover whether this highly complex analysis of interview data leads to increased understanding of the way sponsors think about transformational, large-scale change.
- Explore the potential use of the dialectical thought form (DTF) framework as a tool for leadership coaching and development.

Research Questions

This multiple case study explores the following questions:

- To what degree do the sponsors of organizational change engage in dialectical thinking in their work?
- Is complexity of thinking related to complexity of sponsorship roles? If so, how?
- What phase of cognitive development must sponsors of transformational change attain to become effective change agents?
- Does a higher level of dialectical thinking lead to more effective sponsorship of transformational, complex change?

Assumptions

This study's design reflects my own professional practice in organization development combined with the application of adult development theory to organizational leadership. The study reflects the following assumptions:

- The performance of change sponsors during strategy implementation is directly influenced by the relationship between their cognitive complexity (i.e., as measured by Laske's (2009) cognitive assessment) and the complexity of the task.
- Change of lower complexity, such as transactional change, requires a lower level of cognitive complexity; while change of higher complexity, such as transformational change, requires a higher level of cognitive complexity.
- Formal logical thinking is sufficient for sponsoring first order (transactional) change; second order change requires sponsors capable of postformal, integrative, and transformational thinking.

Scope of the Study

In this multi-case study, I interviewed 10 senior organizational leaders who successfully sponsored major transformational change for the purpose of analyzing the degree to which they thought dialectically or transformationally in their work. Consultants and business associates nominated the participants. Each leader met the following criteria:

- active involvement in sponsoring a major change initiative at the time of the interview or in the recent past;
- history of sponsoring large-scale transformational change;
- ability to articulate their thinking to others;
- subordinate and/or peer recognition as a higher-order thinker;

- recognized for effecting significant change(s) within their followers; and
- interested in and able to reflect on their experiences as sponsors of change.

Using Laske's (2009) dialectical thought form (DTF) framework as a qualitative assessment tool, I examined not what sponsors think, "but rather, how one epistemologically makes sense of the content of the behavior or leadership style that makes a difference" (Eigel, 1998, p. 27), and ways in which cognitive processes influence their actions (Laske, 2009; Martin, 2007a). The use of the DTF framework allowed for examination of how organizational leaders make sense of a social system in which they are embedded and of organizational situations requiring radical change. Better understanding of this complex process may help expand our knowledge of why some sponsors are more effective than others.

Rationale for Investigating the Question

In 2002, Paul and Elder wrote:

> New global realities are rapidly working their way into the deepest structures of our lives: economic, social, cultural, political, and environmental realities—realities with profound implications for thinking and learning, business and politics, human rights, and human conflicts. These realities are becoming increasingly complex; many represent significant dangers and threats. And they all turn on the powerful dynamic of accelerating change. (p. 1)

Mitroff (2004) predicted crisis as inevitable in complex systems and suggested more planning for possible future unanticipated situations. New realities call for new approaches to leadership. Yukl (2006), a prominent leadership scholar, argued:

> Leading change is one of the most important and difficult leadership responsibilities. For some theorists, it is the essence of leadership and everything else is secondary. Effective leadership is needed to revitalize an organization and facilitate adaptation to a changing environment. (p. 284)

The leadership literature abounds with prescriptions, bullet lists, and advice about how to lead change. The current review found as many recommended skills for change leaders as there

are contributing authors, confirming that there is no unified approach to skills and competences. The type of change underway will often determine the type of skills and competences required.

Wheatley (1999) provided a poignant account of an organizational climate experienced by too many actors involved in a change process:

> We tried for many years to avoid the messiness and complexity of being human, and now that denial is coming back to haunt us. We keep failing to create the outcomes and changes we need in organizations because we continue to deny that "the human element" is anything but a "soft" and not-to-be-taken-seriously minor distraction. We barely manage to survive the seemingly endless procession of organizational change fads and new ideas, each of which promises to make organizations more effective. CEOs acknowledge that about three-fourths of these efforts have failed. This terrible record of failure is, in my estimation, due to approaches that are predominately technical and mechanistic. New technology is purchased; new organization charts are drawn; new training classes are offered. But most basic human dynamics are completely ignored; our need to trust one another, our need for meaningful work, our desire to contribute and be thanked for that contribution, our need to participate in changes that affect us. (p. 164)

Olson and Eoyang (2001) acknowledged that the old, mechanistic model of change is outdated. In response to the accelerated pace and complexity of change, they applied the principles of complexity science to the field of planned organizational change. According to Vaill (2001), "change projects will . . . fade away if organization members have not learned to think fundamentally differently about their system as part of the change—because learning to think fundamentally differently about the system is what the present times call for" (p. xxvi).

Laske (2009) pointed out that plans for organizational change often neglect human systems because human systems contain unpredictable synergies derived from the potential capability of their members. Laske explained:

> When this capability is represented in the corporate culture only in terms of some abstract closed system such as the *Balanced Scorecard,* a great number of missing links with the real world of human work remain in place that will come to haunt the organization. Where these absences—misalignments, erroneous selections, unforeseen feedback loops—are not recognized through dialectical thinking, the merger is likely to fail. (pp. 197-198)

In their work titled *Presence*, Senge, Scharmer, Jaworski, and Flowers (2005) noted:

> The fantasy that somehow organizations can change without personal change, and especially without change on the part of people in leadership positions, underlies many change efforts doomed from the start—such as investing in new technologies to produce change, or "change programs" that get "rolled out" through the organization, or consulting that advises clients "how to get their people to change," without ever inquiring about how they themselves may be a big part of the changes needed. (p. 48)

Paul and Elder (2002) echoed this sentiment and emphasized that dealing with the highly complex world in which we live calls for a level of complexity in our thinking and behavior. They stated that we are entering a new world, "one in which the power of the mind to command itself, to regularly engage in self-analysis, will increasingly determine the quality of our work, the quality of our lives, and perhaps even, our very survival" (Paul & Elder, 2002, p. 1).

Jackson (2003) stated it is necessary to understand the mental models people use in their roles in life and work. Changing a system without understanding the ways in which people approach and deal with that system is highly problematic; however, if an individual's mental models are understood, then more significant change is possible. "The ways in which worldviews change become a primary focus of 'soft systems thinking' and, within this, Hegel's notion of dialectical debate between thesis and antithesis was particularly influential" (Jackson, 2003, p. 10).

As demonstrated above, the literature offers substantial evidence that future leaders must demonstrate an ability to deal with a high level of complexity and they should do this by engaging in integrative thinking (Martin, 2007b). These demands call for a fundamental shift in a leader's perception of the world, a willingness to embark on a personal journey of reflection and exploration of existing mental models, and openness to personal growth and change. Whatever thinking abilities business leaders must demonstrate, these abilities are augmented

during organizational transformation. Thus, it appears integrative thinking is mandatory for sponsors of complex, large-scale change.

Clark (2008) differentiated leadership during relative stability and leadership of change. He noted that organizations recognize leading a large-scale change as "unquestionably the most formidable challenge of leadership" (p. 6). Clark defined leadership as the ability to influence people to achieve a shared goal. Once a goal is identified, the challenge for a change leader is to respond to the adaptive cycle and make it one that is shared.

Gap in the Literature

In spite of the low success rate of organizational change initiatives and the well-documented importance of change sponsorship for their implementation (Anderson & Ackerman-Anderson, 2001; Conner, 1992, 1998; De Visch & Shannon, 2009; Harrison, 1999; Higgs & Rowland, 2000), it is remarkable that this distinct role has been neither recognized nor empirically researched in the academic literature. Most research has focused on change agents or change managers, and these roles differ in significant ways from the role of change sponsor. Olson and Eoyang (2001) explained "today, people holding various positions may take on the role of change agent: internal and external consultants, senior executives, mid-to-upper-level managers, supervisors, front-line personnel, human resource officers, diversity consultants and trainers, community organizers, academicians, and students of organizational change" (p. xxxiv).

For the purpose of this study, a *sponsor* is an organizational leader, usually a CEO or other senior executive, who has the power to legitimize and sanction new change initiatives, has decision making power over what to change and how to go about achieving the objectives of the change, and has access to the needed resources (Anderson & Ackerman-Anderson, 2001; Conner, 1992, 1998; Harrison, 1999; Higgs & Rowland, 2000). Change *sponsorship capability*

is considered one of the most important variables in implementing organizational change. The process of developing strong cascading sponsorship is considered critical to the success of significant change in organizations. According to Harrison (1999), "change sponsors are the movers and shakers behind company changes" (p. 6).

Very little research focuses on the meaning-making, sense-making, or developmental needs of those responsible for sponsoring or leading change efforts. Examination of change literature identified only two studies focused on sense-making (Gioia & Chittipeddi, 1991; Higgs, 2003) with only a modest exploration of leaders' sense-making as it relates to the outcome of the change process.

A large number of articles with promising titles focused on some aspect of the attributes, abilities, or competences needed to lead change—for example, "Change Factor: Making the Case for Executive Adaptability" (Kantor, Kram, & Sala, 2008), or "Managers as Change Agents" (Furnham, 2002). Authored by industry professionals, these mostly non-research articles listed various behavioral or personality attributes deemed necessary for successful implementation of change efforts.

The importance of leadership to the change management process is well documented. The leadership literature, especially transformational leadership, is largely concerned with the capabilities required to enact change successfully. Change has been studied as a contextual variable influencing transformational leadership, but surprisingly very little research in the change literature focuses on the relationship between leadership and change. One exception is the work of Higgs and Rowland (2000, 2005), where the primary research focus is on change leadership.

In addition to the separation that exists between the literature on leadership and change, the change management literature further divides into change leadership and change management studies. Studies of leaders in the context of organizational change examine leaders' behaviors during specific change implementation, yet fail to link these observations to broader leadership theories (Eisenbach, Watson, & Pillai, 1999). In change management studies, the emphasis is much more on causal, contextual, and environmental factors and these studies employ predominately quantitative, correlational methods.

The rate, complexity, and importance of change today suggests that there should be more data examining the vital connection between adult development and change leadership. While it is useful to address various aspects of change leadership such as competencies, attributes, use of power, behavior, or circumstantial variables, an equally important aspect is the understanding of leaders' personal experiences of leading change. My literature search identified two doctoral dissertations investigating this topic (Bullock, 2004; Carritte, 2000) using a phenomenological approach; however, these studies used change only as a contextual variable and not as a major focus of inquiry.

Leader development literature is equally insufficiently linked to adult development. Day et al. (2009) noted surprisingly few applications of adult developmental theory to work settings over the past 20 years:

> We are aware of only a few applications of social-constructivist development theory to the topic of leadership (Kegan & Lahey, 1984; McCauley, Drath, Palus, O'Connor, & Baker, 2006) and more recently to the topic of leadership development (Torbert & Associates, 2004), as well as literature for the theory and practice of leadership development (Mumford & Manley, 2003). But these works are exceptions and provide, at best, very preliminary insights into how one could actively intervene in adult development processes in order to promote leader development. (p. 31)

The two most frequently used measures assessing complexity of mental processing are the Subject-Object Interview (Lahey, Souvine, Kegan, Goodman, & Felix, 1988) and the Washington University Sentence Completion Test (SCT) (Loevinger, 1976). Both tools have been widely used—for example, in several doctoral dissertations and in two large meta-analyses of studies involving hundreds of participants (Kegan & Lahey, 2009).

Several studies (Harris & Kuhnert, 2008; Lucius & Kuhnert, 1999; Rooke & Torbert, 1998; Torbert & Associates, 2004; Torbert & Livne-Tarandach, 2009) explored leadership and adult development. None of this research specifically addressed sponsors of organizational change initiatives responsible for both initiating change and ensuring successful implementation. As one CEO, a participant in this study, observed:

> To be a sponsor of successful change, you've got to own, and have that vision, but you also have to know how it needs to be implemented . . . if you don't understand the components of making that vision come true, it doesn't happen.

Only one doctoral study (Wall, 2003) explored managers' thinking during change and transformation from a constructive-developmental perspective. Wall (2003) did not, however, specifically address senior leaders in the change sponsor's role. Torbert and Livne-Tarandach (2009) performed a series of studies identifying CEOs' developmental level as a predictive variable for supporting organizational transformation. While those studies included a similar population and topic, they differed in several aspects. They used a modified Loevinger's (1976) Washington University Sentence Completion Test (WUSCT) to measure and determine a person's developmental level based on the use of action-logic. In contrast to asking participants to perform a specific task (such as completion of preconfigured sentences), the current study engaged participants in a semi-structured dialogue and, thus, invited participants to actively participate in the research process. This study accessed the structure of participants' sense-

making process and observed the individuals' epistemology rather than determining a specific developmental level or stage.

Multiple studies measuring postformal thinking exist. Laske (2009) explained that the term *transformational* indicates metasystemic thinking, or thinking focusing on organized wholes, whereas dialectical thinking focuses on what differentiates those wholes internally and externally. To date, no studies were found that attempted to observe leaders' inner structure of thought through measuring the ability for dialectical thinking.

Laske (2009) suggested thinking is based on concepts, and the process of making sense follows a separate developmental path and needs to be conceptually separated from the social-emotional trajectory of development in order to understand the relationship between the two. Consequently, cognitive assessment as a part of constructive-developmental framework (CDF) explored cognitive phenomenology as a sense-making segment that has been included in, but not differentiated from, the overall trajectory of adult development represented in the work of Cook-Greuter (1999), Kegan (1982), Torbert and Associates (2004), and others.

In a plethora of cognitive assessments, adult cognitive development can be measured at any level. Laske's (2009) cognitive assessment used in this study was limited to measuring a specific form of postformal thinking, that of dialectical thinking. Dialectical thought form framework is particularly suitable to identify the degree to which formal logical thinking is integrated into a broader, transformational view of the world that culminates in full dialectical thinking.

Dialectical thinking is defined as a discovery procedure for finding truth and is based on splitting one abstraction from another to bring the two together into a larger, more complex whole (Laske, 2009). Change is the central theme in dialectics (and dialectics presuppose

change). This study used dialectical thinking as an approach to the study of the complexity of mental processing of change sponsors. To date, no research found in the business literature uses dialectics to access the deep structure of the sense-making process. See Figure 1.1 for a schematic of this study.

Framework of the Study

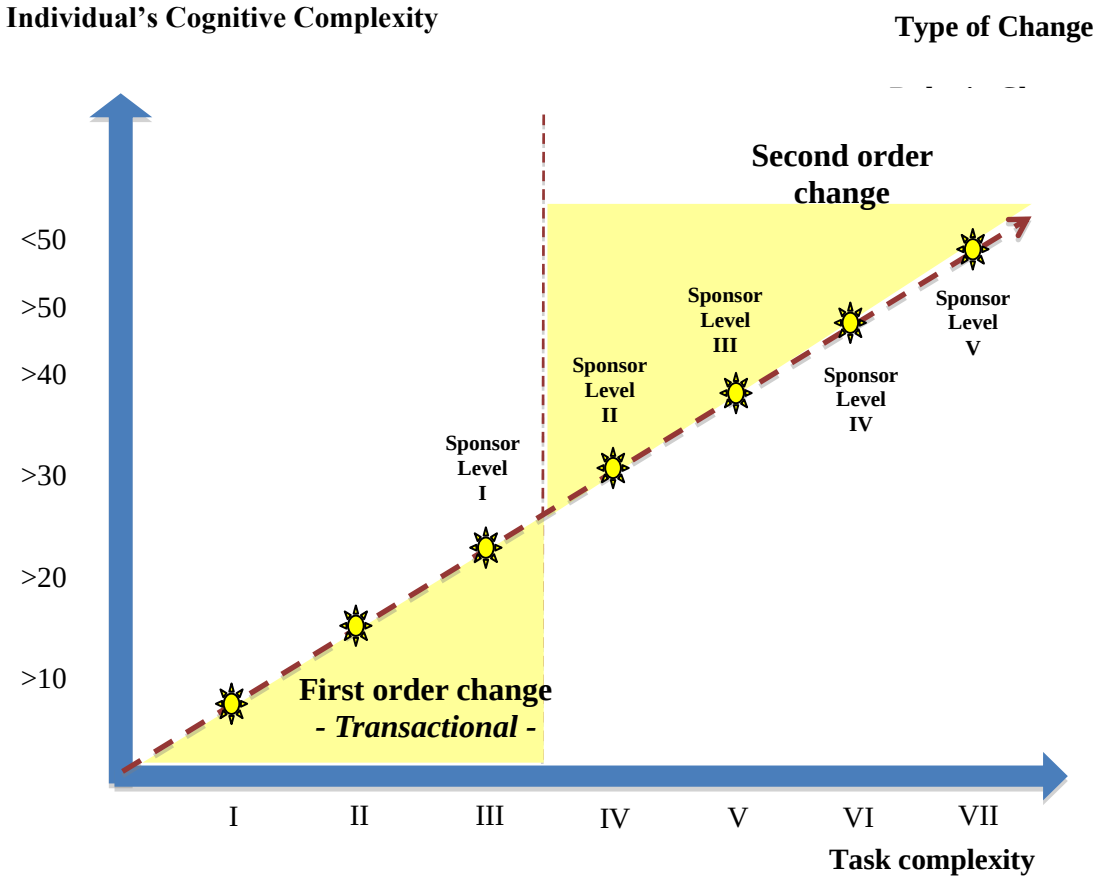


Figure 1.1. *Conceptual framework for this study.*

In Figure 1.1, the vertical axis identifies an increase in cognitive complexity from the lowest level (Fluidity Index below 10) at the bottom, to the highest level (Fluidity Index above 50) as measured by Laske's (2009) Cognitive Development Assessment. The horizontal axis shows a progressive increase in task complexity (Jaques, 1998). The diagonal axis demonstrates

the hypothesized degree of the sponsor's capability to lead change depending on achieved equilibrium between task complexity and the individual's cognitive capability.

Dialectical Thinking

According to Basseches (1984), dialectical thinking is an intellectual tradition representing "a third alternative to two powerful styles of thought" (p. 9)—universalistic formal thinking grounded in fixed universal truths and relativistic thinking assuming many different orders and truths. He suggested that dialectical thinking indicates a developmental direction of adult cognitive development following the epistemological limits of formal thought. Basseches asserted:

> Formal operations cannot be equated with cognitive maturity, because formal operations by themselves are adequate only for dealing with a set of closed-system problems, which constitute a very narrow sector of the broad range of problems with which adults are confronted. (p. 63)

Ross (2009), identified dialectical thinking, also called *systems-of-systems thinking*, as one of the, but not the only or absolute, structures of thought:

> One of the structures of thought is called dialectical thinking. With relatively few exceptions (and there are exceptions), dialectical thinking is the most complex, most comprehensive, and most transformative way of thinking possible at this stage of human evolution. What makes dialectical thinking so complex, so comprehensive? In fully developed form, it is "systems-of-systems thinking." But it does not just suddenly show up in that form. Rather, dialectical thinking is the result of dialectical processes of constructing itself. (p. 1)

Unfortunately, many sponsors of change tend to maintain fixed beliefs about the nature of change and these beliefs guide their change leadership. Considering the risk of failure of change efforts, assessing the degree of dialectical thinking (or lack thereof) of sponsors is consistent with the well-articulated need for radically different forms of thinking essential for dealing with new complex business realities.

This study adapts Laske's (2009) constructive developmental theoretical framework (CDF), originally designed to understand the development of adult thinking over a lifespan, to examine the cognitive profiles of sponsors of change. The adaptation provides a comprehensive and deep exploration of how sponsors of change internally construct their workplace and how the construction of this inner workplace influences the quality of performance in the real workplace. This accomplishment is a contribution to the field of practice; providing insight into the cognitive complexity required for the role of change sponsor while identifying the need for purposeful developmental efforts aimed at achieving effective change sponsorship.

Further, the current study adds to the understanding of the cognitive requirements for successful change sponsorship while revealing why current schemes of change sponsorship are deemed ineffective (as evidenced by empirical studies). Torbert's and Livne-Tarandach's (2009) research of CEOs confirmed the correlation between higher developmental stage and the ability to lead transformational change. This research design and methodology enables identification of higher developmental stages of successful change leaders while demonstrating in great detail how these leaders think and ultimately construct their own cognitive maps.

Epistemological Approach

I clarify two kinds of positioning—first, my own positioning within the study and the potential biases and influences that may impact the study. The second positioning situates this study within the broader social sciences discipline. This study was conducted from a constructivist paradigm. The main topic areas are adult development, cognitive science, and dialectical thinking within a business setting imbedded in a process of organizational transformation.

This study involved three cultures of inquiry (Bentz & Shapiro, 1998). The first, phenomenology, was used for cognitive interviewing. The second inquiry focused on the narratives resulting from interviews scored to measure the use of dialectical schemata (Basseches, 1984) or thought forms (Laske, 2009), while accessing the structure of participants' thinking. The scores were expressed as a composite index revealing overall cognitive strength resulting from several subscores. The third inquiry transformed qualitative data into quantitative data for analysis and reporting purposes. This study moved away from traditional empirical research because, as Rehorick and Bentz (2009) suggested, combining "the insights of phenomenological inquiry and the results of empirical studies offer[s] a fuller and richer understanding of the phenomenon under consideration" (p. 34).

Study Limitations

In addition to measuring cognitive abilities for complex, dialectical thought, the full understanding of one's cognitive capabilities also requires the integration of emotional and social aspects. Lack of such integration could lead to a gap "between espoused theory and theory in use" (Inglis & Steele, 2005, p. 40). Although Laske's (2006, 2009) constructive-developmental framework (CDF) consists of three interrelated assessments—cognitive assessment, socio-emotional assessment, and psychological balance assessment (the latter measured using a need/press questionnaire)—only cognitive assessment was used for this study, and the other two assessments were omitted because they exceeded the scope of this study. Cognitive assessment, consisting of the DTF framework, enabled the exploration of the business executives' thinking through a unique and unexplored lens.

This multiple case exploratory study included only 10 participants. The findings are limited by the scope and size of the sample and, thus lack generalizability. The study offers a

novel methodology of research designed to elicit unique insights into the structure of the sense-making processes of these 10 individuals.

Overview of Methodology

Ten executive leaders currently in (or having had past experience with) the role of organizational sponsor of change in a private corporate and not-for-profit setting were interviewed. This sample was chosen via purposeful sampling of participants nominated by peers and expert consultants as successful sponsors.

Using a custom-designed interview protocol for cognitive assessment named the Professional Agenda Interview (Laske, 2009) derived from the constructive-developmental framework (CDF), interviews were scored in terms of phases of cognitive development. Following the scoring of the interview transcripts, I developed comprehensive cognitive profiles of a cohort of 10 executive leaders/sponsors of change. These profiles enabled understanding of the underlying cognitive processes, each participant's degree and structure of dialectical thinking, and its contribution to effective change sponsorship. The profiles were used to illustrate the structure of the participant's thinking or sense-making. Following profile completion, I finished a scoring narrative measuring the overall fluidity of the individual's dialectical thinking through the use of DTFs within four quadrants of dialectics (process, content, relationship, and transformational system). The numerical scores are expressed as composites of several inter-related indexes, each revealing one aspect of a person's thinking. Combined together, these scores illustrate a comprehensive picture of the subject's cognitive makeup.

The scores derived from the CDF methodology reveal the degree to which sponsors employ dialectical thinking as they reflect on their role, their organization and the change process, and their sense of their own professional agenda. Those scores reveal the common

thread of a high degree of transformational thinking demonstrated in elaborate and frequent use of dialectical thought forms, yet they also reveal unique and different epistemologies of each person.

The main preconditions for successful use of CDF assessment (interviewing and scoring) are the interviewer's skills in cognitive interviewing and dialectical listening. It requires extensive training and advanced certification from Interdevelopmental Institute where Dr. Otto Laske, the author of the assessment, teaches this methodology. I learned this scoring method while completing a rigorous 18-month training program leading also to a master certificate in developmental coaching and consulting (see Appendix A). Five IDM certified professionals, including Otto Laske, served as second and third scorers in this study to establish inter-rater reliability.

Significance of This Research

This study fills an important gap in the literature by linking sponsorship of organizational change to higher stages of adult cognitive development. It also illuminates the complex and unique role of a sponsor from a first-person account of those who successfully fulfilled the role and situated this role in a broader, systemic context of the organization. Finally, the study examines the role dialectics plays in affecting leadership and change.

This dissertation makes several useful contributions to academic research and the change management profession:

- Clarifying the degree of complexity inherent in the change sponsor's role.
- Revealing the sense-making process of senior leaders who successfully transformed their respective organizations and illustrated individual epistemological differences within a seemingly cohesive group of professionals.

- Identifying unique patterns of dialectical thinking for each individual study participant.
- Finding common thinking patterns among all study participants.
- Providing a concise set of scoring categories for distinguishing among four phases of dialectical thinking.
- Testing the DTF as a framework and operational tool for developing dialectical thinking skills.
- Proposing a methodological approach suitable for practical application for selection and development of sponsors of change.
- Establishing a rigorous inter-rater reliability protocol.

Study results suggest that leaders who successfully transformed their organizations are fully developed dialectical thinkers who reached levels of individual growth that matched the cognitive complexity required for their roles. These findings support the intent to create a conceptually and empirically sound framework for sponsorship development, such that it can guide the development of individuals who are likely to shy away from the latest change management fads and who demonstrate cognitive capability, emotional maturity, and a commitment to ensuring sustainable and true organizational transformation. This research tested the DTF framework and confirmed promise and potential for practical use in working with sponsors of change. This study also opened up an array of appropriate topics for future studies, as is discussed in chapter 5.

Organization of the Dissertation

This dissertation is divided into five chapters. The research objectives, gap in literature, and rationale for the study were introduced in chapter 1. Chapter 2 reviews the pertinent

literature. The purpose of chapter 2 is to situate the dissertation within the context of leadership and organizational change, and adult development. I use the lenses of adult development and dialectical thinking to filter the literature to examine the application of these two areas to the work of sponsoring change. Chapter 2 critiques the reviewed literature—particularly empirical research in the change management domain—and demonstrates how it is insufficient for addressing the research question. The second chapter also supports the rationale for the study. Chapter 3 describes, in detail, the design of my study, the method used, and my rationale for the study. It also includes a description of the newly developed protocol for establishing inter-rater reliability applied in this research. In chapter 4, I report and discuss the research findings. I first present a detailed description and analysis of each participant's individual profile, followed by analysis of the group profile and identified patterns and common themes. Chapter 5 focuses on this study's implications for assessment, selection, and development of managerial leaders for sponsorship roles. Chapter 5 also discusses the study limitations and the promises and challenges of the DTF framework as a research methodology and developmental tool. I conclude chapter 5 with suggestions for future research.

Ethical Issues Involved in the Study

CDF cognitive assessment is a psychometric tool primarily used for coaching and development purposes, so I needed to be explicit about the purpose and outcome of the study. I made every effort to protect participants from any harm by providing them with a consent form, documents providing full disclosure of the method, and the protection of confidentiality by using fictitious names in discussion of study results. I used the method with a high degree of rigor and adapted the method to a specific research group under the guidance of my mentors, Daryl Conner and Dr. Linda Hoopes, and my dissertation chair, Dr. Jon Wergin. Participants had the option of

reviewing the results of the assessment through a structured feedback session and were given the opportunity to withdraw from the research at any time.

Definition of Terms

The following definitions are provided to clarify the meaning and help ensure consistent interpretation of these terms as they are used in this study:

- *Change leadership*—the ability to help an organization respond to an adaptive challenge (Clark, 2008).
- *Change management*—the application of behavioral science to the decision making, planning, execution, and evaluation phases of the change process, all focused on the management of unnecessary disruption. Change management does not focus on what is to be changed, but on how the solution is to be implemented. Its purpose is to substantially increase the likelihood of successful project implementation by addressing the human aspects of the change (Harrington, Conner, & Horney, 2000).
- *Change sponsor*—an organizational leader, usually a CEO or other senior executive, who has the power to legitimize and sanction new change initiatives. Sponsors have the authority to decide what to change and how to go about achieving the objectives of the change, and have access to the needed resources (Conner, 1998).
- *Dialectical thinking*—the extension of formal logical thinking; specific to a *metasystematic* (Basseches, 1984; Commons & Richards, 1984) or *metasystemic* (Laske, 2009) level of cognitive organization within postformal thought; and characterized by emphasis on change, wholes, and internal relations. It is based on separating, or splitting off, one abstraction from another in order to bring them back together into a larger, more complex whole; also defined as a discovery procedure for

finding the truth (Basseches, 1984; Laske, 2009). In this dissertation, I use the term *metasystemic* when referring to this general property of dialectical thinking.

- *Epistemology*—the theory of knowledge; a branch of philosophy concerned with the nature and scope of knowledge. Jaques' (1998) theory of organization and Laske's (2009) dialectical thought forms framework used in this study are both grounded in epistemology, not in psychology.
- *Formal logical thinking*—the form of cognitive organization that presumes logical consistency within a single, closed, and logical system. It is based on dualistic epistemology and used for solving a problem in a logical and methodical way.
- *Organizational transformation*—refers to "change in thought and action at a much more fundamental level than has been accomplished so far by most change agents" (Vaill, 1998, p. 8).
- *Postformal thinking*—advanced form of cognitive organization unique to adult development (Blanchard-Fields, 1989), based on relativistic epistemology (Sinnott, 1989); the ability to order several systems of formal operations or systems of truth into a more complex logical system of thought developing through stages from systematic thinking through metasystematic to paradigmatic and cross-paradigmatic thinking (Commons & Bresette, 2006).
- *Requisite organization*—the systematic and science-based approach to organization design and effective management that stipulates that organization is requisitely organized when the complexity of work at a particular level (stratum) matches the level of capability of the individual performing work at that level (Jaques, 1998).

- *Thought form*—also, *schema* (Basseches, 1984), the unit of analysis for scoring cognitive interviews. It is a high-level concept that captures the essence of an idea expressed through speech. It captures the *sense generator* rather than the meaning generator of human speech (Laske, 2009).
- *Work complexity*—"the notion that work, being a cognitive endeavor, is a stratified process comprising different levels of conceptual abstraction. Different levels of abstraction must be mastered at different strata" (Laske, 2009, p. 645).

Chapter II: Literature Review

This dissertation examines the relationship between the complexity of the change sponsors' role and the degree to which they engage in higher-level, or postformal thinking (i.e., can incorporate multiple perspectives of reality) in their work. The purpose of this chapter is to weave together four different streams of literature pertinent to this research: (a) organizational change management/leadership, (b) leadership in the context of complex, large-scale change, (c) systems theory and requisite organization, and (d) cognitive development and dialectical thinking within the broader discipline of adult development.

The chapter is organized according to an overview of the main concepts and theories that inform this research. This overview explores two major strands of research—leading change in organizations, and the potential contribution of adult development theory and cognitive development to the understanding of what it takes to lead that change.

Leadership and Change

How does change happen in an organization? The practice of leading change has been informed by a large number of theories and studies, some well known and frequently cited in the popular literature and others seldom encountered outside academic circles. The types of change in organizations are defined by the scope and depth of the change effort. Scholars (i.e., Burke, 2002; Gersick, 1991) use different labels to describe the same phenomena, but basically, there are two fundamentally different types of change. One is called evolutionary, continuous, incremental, first-order, or transactional change. This type of change is limited in scope and its purpose is to improve or develop existing processes, systems, and climates. Discontinuous, or transformational, change refers to change of organizational mission, leadership, and culture, and affects the deep structure of the system. Different tools and techniques are needed to

successfully implement revolutionary or transformational change than are needed for evolutionary change (Burke, 2002). Deep structure is defined as largely implicit in human systems (Gersick, 1991), embedded in organizational design for decision making, accountability, the control and distribution of power, and the way the organization monitors, reacts to, and relates to the external environment (Tushman & Romanelli, 1985).

It is the ability to understand deep structure and its dynamics, as well as the ability to distinguish the nature and implication of change that are the focus of this study. While formal-logical or closed-system thinking is sufficient for leading evolutionary change, leading revolutionary change requires postformal thinking.

Burke (2002) believed creating significant change in an organization begins with changing behavior that will eventually lead to the desired change in attitudes and beliefs and will subsequently affect values. This approach is in stark contrast to developmental scholars, who claim that, in order to bring about lasting change we need to understand and work to change the underlying frame of reference or consciousness, and when a shift in consciousness occurs, the behavior will change (Kegan, 1982; Kegan & Lahey, 2009; Laske, 2006, 2008).

There are two main schools of thought regarding change in organizations. The traditional approach to change assumes change begins at the top, efficiency comes from control, and the outcomes of change can be predicted (Olson & Eoyang, 2001). Another group, grounded in complexity theory, believes change is unpredictable and ongoing and order is emergent rather than hierarchical.

Foundational (or traditional) theories of organizational change. Among the numerous theories of change, several models are included in this review because of their significant contribution to the field of organizational change, their broad application, and their

strong influence on practice. Those models include Lewin's (1951) force field analysis, Nadler and Tushman's (1997) congruence model, Bridges' (1980) model of ending, neutral zone, and beginnings, and Kotter's (1996) eight-step model.

Lewin—Force field theory. Force field analysis (Lewin, 1951) was one of the earliest theories of change. The theory stipulates that two types of forces influence change, driving forces and restraining forces. For change to succeed, it is necessary to increase driving forces, to reduce restraining forces, or to use both approaches simultaneously. The three-step model (unfreeze, change, refreeze) describes a sequence of events in a change process. Organizations first realize, often during a crisis, that an old way of doing things has become inadequate (unfreezing). After analyzing threats and opportunities and selecting new, promising options for conducting business, they move toward new ways of doing things (change). Organizations move to the refreezing phase when the new approach is implemented and becomes established. Although valid when analyzing the change process at the start of an initiative, the theory loses its power in complex organizations when a three-step mechanistic approach is insufficient to accommodate multiple variables of a change process (Lewin, 1951).

Nadler and Tushman—Congruence model. Nadler and Tushman's (1997) congruence model was based on the socio-technical view of the organization and assumes that managerial, strategic, technical, and social subsystems or components work interactively and depend on each other. It is a popular tool among professionals because it provides a useful checklist for the change process. Although this model moved away from a Lewinian linear approach toward a systems approach to change, it remained fairly mechanistic because it lacked a vision-setting process, one of the crucial elements for leading change (Burke, 2002).

Bridges—Model of ending, neutral zone, and new beginning. Bridges (1980) pointed out the psychological implications of change on individuals as a possible cause of resistance to change. He described life transitions as natural processes of disorientation and reorientation through three distinct phases: ending, neutral zone, and new beginning. Bridges suggested beginning every change effort with an ending before moving toward a new beginning. The theory is valid when change can be clearly identified; however, it becomes impractical during ongoing, multiple, and overlapping changes within organizations where specific phases or steps are less distinct (Bridges, 1980, 1991).

Kotter—Eight-steps model. Kotter's (1996) eight-step model is considered one of the most popular and widely used models among practicing change management professionals. His model focuses on early practical steps needed to prepare an organization for a change, such as building coalitions and setting a vision. The model's popularity is attributed to its prescriptive, easy-to-use formula, which is suitable for immediate application. The key weakness of the model is its linear rather than cyclical view of change, with limited iterative possibilities during the change process (Cameron & Green, 2004).

The linear nature of the early theories of change has become recognized as simplistic and limited for most change efforts today, but their authors (i.e., Bridges, 1980; Lewin, 1951; Nadler & Tushman, 1997) made significant contributions to introducing the human factor to organizational change and laid the foundation for a deeper understanding of change dynamics. Effective in times when change was not as prevalent and could be managed in a prescribed fashion, they represent a simple formula for a mechanistic approach to change that does not sufficiently take into account the turbulent and unpredictable environment of an organization, the

change process' internal dynamics, or the leadership attributes and behaviors needed to conduct change effectively (Cameron & Green, 2004).

Contemporary theories of organizational change. Capra (1996) wrote that "the more we study the major problems of our time, the more we come to realize that they cannot be understood in isolation. They are systemic problems, which means that they are interconnected and interdependent" (p. 3). The literature suggests the nature of change in the future will call for a new approach to change and its leadership. New solutions to current problems "require radical shift in our perceptions, our thinking, our values" (Capra, 1996, p. 4). Along with numerous contemporary thinkers who challenge the machine-like view of organization, Olsen and Eoyang (2001) proposed a new "complex adaptive system" (p. xxxii) that exists within the emergent order, having both an irreversible history and unpredictable future (Santana, 2008).

Senge et al. (2005) predicted that while the changes we face in the future "will be both deeply personal and inherently systemic . . . the deeper dimensions of transformational change represent largely unexplored territory (p. 5)" in regard to our understanding of leadership. Systems theory and complexity theory are particularly relevant for understanding organizations, change, and leadership. Burke (2002) suggested organizational researchers could not explain organizational behavior by analysis, but needed to follow research methods within the physical sciences and adopt a "complex-system approach" (p. 127) instead of attempting to break a system into its component parts. Svyantek and Brown (2000) explained what was required to understand the behavior of a complex system:

> (a) the variables determining the system's behavior,
> (b) the patterns of interconnections among these variables, and
> (c) the fact that these patterns, and the strengths associated with each interconnection, may vary depending on the time scale relevant for the behaviors being studied. (p. 69)

Many approaches from Gregoire and Prigogine (1989) who used examples from chemistry and physics to explain the components required for occurring complex behaviors within dynamic systems, to the work of Barbour (1999), especially *The End of Time: The Next Revolution in Physics,* and many others working on complexity and systems theory, have illustrated the overwhelming interest in a new understanding of organizations and change.

Systems theory. Open systems theory (Katz & Kahn, 1978) is highly relevant for understanding organizational change because every change objective is systemic (Burke, 2002). The key difference between mechanistic and systemic thinking is the reversal of the relationship between the parts and the whole. The main criterion for systems thinking is a shift from the parts to the whole and the ability to focus attention on different parts and levels of the system (Capra, 1996). Drawn from the general systems theory of biologists like Von Bertalanffy (1976), Maturana and Varela (1987), and physicists Capra (1996), Prigogine (1981, 1984), and others, organizations are viewed as living systems analogous to the functioning of human cells and their interaction with the external environment. Thus, organizations are viewed as open systems because of their interaction and dependency on the environment, and permeable and open boundaries. It is important for leaders of change to understand and take a systems perspective when changing parts because "the change of one part will affect other parts, perhaps all parts eventually" (Burke, 2002, p. 45).

Capra (1996) used three concepts to understand life: pattern, structure, and process. The properties of the parts can only be understood within the context of the whole, therefore, the parts are considered as patterns of an inseparable web of relationship, thus changing from objects to relationships. He defined pattern as "the configuration of relationships that determine the system's essential characteristics" (Capra, 1996, p. 161). Structure refers to the system's

physical components, and process serves as a connector between structure and pattern. Capra explained process as an activity and introduced the term *cognition* as meaning the process of life, and then introduced the term *mind*. He made a distinction between mind and brain, implying that a brain is a physical thing serving as the structure for cognition or mental processes, while a mind is a process. Cognition, or the process of knowing, cannot be understood in isolation, but it can be understood in the context of the living system's interaction with its environment.

Systems theory has direct implications for organizational change. Organizations' boundaries can be defined primarily as social in nature, and the need for organizational change is typically initiated by some perturbation in the external environment. How to read and understand the organization as a system embedded in the environment and then decide how to act is largely determined by the top executives' ability to think systemically. As Laszlo (1996) said, it is fairly easy to see how one thing affects another; but it is difficult to determine how a number of different and interacting things act together when exposed to a number of different influences at the same time.

Capra's (1996) three criteria for understanding life (pattern, structure, and process) are analogous to the quadrants of dialectics used for the current study (relationships, context, and process). Burke (2002) suggested Capra's synthesis helps us understand organizational executives' actions more broadly. The current study follows the same line of reasoning—it measures executives' metasystemic or transformational thinking, or the ability to see the world through a balanced view of process, context, and relationships, or the essence of accessing the deep structure of the human system and illuminating the cognitive processes that lead to executives' actions.

Complex adaptive systems (CAS). Olson and Eoyang (2001) suggested, "the science of complex adaptive systems provides an alternative to traditional models of organization change" (p. xxxii). Complexity science deals with, among other things, the way complex systems adapt to different environments. The basic unit of analysis in complexity science is the complex adaptive system (CAS). Uhl-Bien and Marion (2008) defined the CAS as:

> Neural-like networks of interacting, interdependent agents . . . bonded in a cooperative dynamic by common goal, outlook, need, and so on . . . like the individuals that comprise them, CASs are linked with one another in a dynamic, interactive network. (p. 187)

The three basic principles characterize a CAS: (a) order is emergent as opposed to hierarchical, (b) the system's history is irreversible, and (c) the system's future is often unpredictable (Olson & Eoyang, 2001). "The basic building blocks of the CAS are agents. Agents are semiautonomous units that seek to maximize some measure of goodness or fitness by evolving over time" (Dooley, 1996, pp. 2-3). Unlike a traditional change process that focuses on arbitrary fixed-end goals, in CAS, the interaction of the system's agents results in experimentation and emergent vision, plans, structure, and controls. Olson and Eoyang (2001) pointed out the profound implications that the unpredictability of CAS holds for the work of change agents who "must deal with change in the absence of clear, predictable goals or structures" (p. 80). Uhl-Bien and Marion (2008) proposed a framework called the complexity leadership theory (CLT) that seeks to take advantage of the dynamic capabilities of CAS. The authors proposed three basic leadership types: "(a) leadership that fits the traditional hierarchical model (administrative leadership), (b) leadership that is supportive of CAS (enabling leadership), and (c) dynamic leadership that is core to 'emergent change activities' (adaptive leadership)" (p. 187).

Jaques' requisite organization. Jaques' (1998) theory of requisite organization offers a third, radically different view of organizations and leadership. Although he observed organizations from a systems perspective, Jaques did not move away from organizational hierarchy, instead, he adapted that hierarchy to be responsive to human and social needs (Lessem, 1994). Originally developed and tested in a manufacturing environment by Elliot Jaques and Wilfred Brown, requisite organization is a comprehensive and research-based system of theory and application to management and organizational design. It is defined as requisite because it brings into balance the complexity of levels of work in a company with the levels of capability of individuals delivering work on those levels called work strata (Laske, 2009). In nearly 50 years of research, Jaques has shown that only requisitely organized companies can ultimately survive and thrive (Jaques, 1998; Jaques & Cason, 1994). Jaques' research focused on the individual-in-role and the process of maturation through the individual's potentially unfolding grasp of cognitive complexity (Lessem, 1994).

Jaques' (1998) theory made a monumental contribution to the study of organizations and has provided a voluminous source of research ideas for a broad spectrum of research areas. The impacted research areas include economics, cybernetics, cognitive and behavioral complexity, management theory, and even biological and ecological studies (Craddock, 2009).

Leading authors of contemporary organizational theories have shared the common belief that one cannot rely on a traditional mindset developed in an environment of reengineering and planned change to lead effectively in a complex organization. They have emphasized the complexity of organizational systems noting that this complexity calls for corresponding level of thinking and the need for changing old mental models of those responsible for leading and changing organizations.

Mental models. The mental models people bring to their roles are comprised of values and knowledge they have developed through their experiences. Such mental models can best "be understood in systems terms" (Jackson, 2003, p. 10). Jackson (2003) suggested if the goal was to change events or people at more than the simplest level (first-order learning), the second order, or transformational, change is possible only if engaging in second-order learning can change the mental models. Jackson pointed out that Hegel's "notion of dialectical debate between thesis and antithesis was particularly influential" (p. 10) in work on changing individuals' worldviews. This is one of the underlying reasons I have selected a methodology rooted in Hegel's dialectics to use in conducting this study.

What Do Major Leadership Theories Have to Say About Leading Change?

The root of the words leader and leadership is *lead*, which means path or road, implying that a leader is one who shows the way by walking ahead (Kets de Vries, 2001). The use of the word leader in the English language (beginning around 1300 C.E.) changed over time. Before the onset of the Industrial Revolution, the term leadership was increasingly used in politics to describe what leaders do. Around 1828 C.E., "the professional role of leader in organizations came into the vernacular of the people" (Grace, 2003, p. 6). First published in 1908, the *New English Dictionary* (as cited in Grace, 2003) introduced a psychological definition of leadership as "the ability to lead," and, by 1925, March and March (as cited in Rost, 1993) documented the introduction of leadership in organizations by introducing a term *manager* as one synonym for leader.

Burns—Transformational leadership. A fundamental distinction between transactional and transformational leadership originated in the work of James MacGregor Burns, who is considered a father of transformational leadership. In his book, *Leadership*, Burns (1978)

identified two types of political leadership—transactional and transformational. In transactional leadership, the leader makes contact with others (the followers) to make an exchange of something valued; in transformational leadership, if successful, followers are not asked to partake in an exchange; rather, their beliefs are changed. Further, "the result of transforming leadership is a relationship of mutual stimulation and elevation that converts followers into leaders and may convert leaders into moral agents" (Burns, 1978, p. 4).

"Bass (1985) applied Burns' (1978) ideas to organizational management" (Kuhnert & Lewis, 1987, p. 648). Burns argued that, in general, transactional leaders work on things like improving and maintaining performance, achieving goals (with minimal resistance), and implementing decisions. On the other hand, transformational leaders raise "colleagues, subordinates, followers, clients, or constituencies to a greater awareness about the issues of consequence" (Bass, 1985, p. 17). Bass (1985) stated that a transformational leader must have "vision, self-confidence, and inner strength" (p. 17) to successfully achieve the transformational type of change. Kuhnert and Lewis (1987) noted a lack of an explanation of the internal processes that enable the actions of transactional or transformational leaders. According to them, neither Burns nor Bass "provided a framework for understanding the motivational states or personality differences that give rise to these two types of leadership" (Kuhnert & Lewis, 1987, p. 648).

Greenleaf—Servant leadership. Greenleaf (2002) defined servant leadership as leadership that is aware of and responsive to the concerns of a leader's followers, striving to help them become freer and more autonomous. The essence of servant leadership is the ability to guide others toward achieving a goal by eliciting trust, and trust is built by listening and asking before telling, and by accepting and empathizing with others. Ultimately, Greenleaf painted a

picture not only of service, but also of responsibility and care for the greater good, another important ingredient of sustainable change.

Northouse (2007) situated Greenleaf's (2002) concept of servant leadership into stakeholder management because of the leader's social responsibility toward all community members. Servant leadership values everyone's involvement in community life because it is within a community that one fully experiences respect, trust, and individual strength. Greenleaf placed a substantial emphasis on "listening, empathy, and unconditional acceptance of others" (p. 349). The literature provides significant evidence that the pivotal qualities of servant leaders are relevant to sponsorship of organizational change.

Heifetz—Adaptive work. Heifetz (1994) accentuated the importance of leaders understanding the distinction between technical problems and adaptive challenges. Problems that are known and can be solved with knowledge and procedures already in hand are solved with technical work. Technical problems mostly fall under the umbrella of management development through training orientation focusing on the application of proven solutions to known problems (Day, Zaccaro, & Halpin, 2004). In contrast, a need for adaptive work occurs in situations where either the problem or the solution is unknown. Therefore, adaptive work requires new responses from leaders, new capabilities, and new patterns of behavior. Heifetz believed leaders are responsible for mobilizing adaptive work. In this view, leadership is defined as "the activity of mobilizing people to address adaptive challenges—those challenges that cannot be resolved by expert knowledge and routine management alone" (Daloz Parks, 2005, p. 10).

Heifetz's (1994) concept of adaptive work represents a major contribution to the field of leadership and is particularly pertinent to change leadership. Leading people through ambiguity

and chaotic stages of change makes adaptive work one of the most important qualities of every leader of change. Adaptive challenges are more than incorporating new technical skills into an existing mindset, and "they can only be met by transforming your mindset, by advancing to a more sophisticated stage of mental development" (Kegan & Lahey, 2009, p. 29). Change is, according to Heifetz, an opportunity for both leaders and followers to engage in reflective evaluation of priorities and values (reality testing), and to learn new ways of doing things. Heifetz proposed the creation of a holding environment to resolve adaptive challenges: "A holding environment consists of any relationship in which one party has the power to hold the attention of another party and facilitate adaptive work" (pp. 104-105). Heifetz also devoted a significant part of his work to differentiating between leading with and without formal authority. Trust is a foundation of relationships based on informal authority and it is necessary for managing a holding environment. Trust and authority are fundamental requirements for adaptive work and informal authority takes precedence over formal authority.

Roles and Tasks in the Change Process

Leader versus manager. Several scholars created a substantial body of knowledge in the effort to differentiate the roles of leader and manager (Burke, 2002). The relationship between transactional and transformational leadership is often dichotomized, especially in business leadership, such that transactional leadership is equated with management and transformational leadership is reserved for the upper echelon of executives. Without a balanced approach to management and leadership, organizations are in danger of being overmanaged and underled during change (Kanter, Stein, & Jick, 1992). Achieving such a balance requires a comprehensive set of leadership qualities.

Vaill (1998), for example, did not differentiate the two roles. He coined the term *managerial leadership* to describe a specific set of attitudes and abilities needed to lead a system through change while keeping it "stable and serviceable" (p. 3). According to Vaill, organizations undergoing change need managerial leaders with technical, purposeful, and relational skills. Thus, he considered management as performing art and underlined the interdependent nature of both disciplines. Burns (2007) also corrected himself in his later writing, recognizing a strong connection between transformational and transactional leadership, noting that most leaders "combine transforming and transactional leadership" (p. viii).

The person who can balance the goals of manager and leader embodies the essence of change leadership. Williams and Deal (2003), using Bolman and Deal's (2002) cognitive frames, proposed viewing self-actualized manager-leaders as synergists who integrate the functions of rationalist, politicist, humanist, and culturalist. The process of achieving a balance of opposites, which is the essence of dialectical thinking as discussed later, traces back to Maslow's (as cited in Williams & Deal, 2003) work, where he described a similar process:

> What had been considered in the past to be polarities or opposites or dichotomies were so only in unhealthy people. In healthy people, these dichotomies were resolved, the polarities disappeared, and many oppositions thought to be intrinsic merged and coalesced with each other to form unities. . . . The age-old opposition between heart and head, reason and instinct . . . disappear[s] in healthy people where they become synergic rather than antagonists, and where conflict between them disappears. (p. 233)

Vaill (1998) used the phrase *running an organization* to emphasize the need for clarity regarding who is in charge of making things happen. For Vaill, running an organization means "repeatedly and successfully exercising influence on others in a dignifying and empowering way on behalf of the variety of objectives, priorities, and constraints existing in the organization, using many different kind of knowledge, common sense, and skills" (p. 98).

However, the literature also suggests that across-the-board participation should not be considered the ultimate goal in change management. In Dunphy's (2000) view, for example, the participation of knowledgeable, skilled, and motivated people in the process may enhance change projects, while the participation of an unskilled, uninformed, and unmotivated workforce will not. Further, organizations must invest money, time, and attention in participatory schemes to ensure these schemes will really work. Rhetoric about participation may only breed cynicism (Dunphy, 2000).

Kanter et al. (1992) pointed to problems associated with the concept of participatory management. The authors argued "sometimes participation can be something the top orders the middle to do for the bottom. . . . [As a consequence,] being ordered to participate does not feel much different from being ordered to do anything else" (p. 381).

Gersick (1991) identified cognition, motivation, and obligation as three powerful barriers to change. According to Gersick, cognition, or our own models of reality, shape our awareness of the world around us. Although cognitive frameworks help us understand reality, they can also limit our ability to expand our ways of looking it. Motivation refers to the degree of willingness to reduce loss and uncertainty, the two accompanying elements of every change. Obligation refers to underlying inertial constraints of stakeholders who "hold expectations of and assumptions about how the system is supposed to operate. When this equilibrium is disturbed, they put pressure on the system to 'get back into line'" (Gersick as cited in Burke, 2002, p. 66). The success of a sponsor of change will depend on the sponsor's ability to integrate those two roles and to balance the need for mobilizing organizational members with taking tactical steps to create that balance.

Most of the practitioners' literature on leading change has stressed the importance of clarifying roles during the change process—for example, there is a crucial need for strong sponsorship and for separating the roles of targets, change agents, change advocates, and stakeholders' involvement (Anderson & Ackerman-Anderson, 2001; Conner, 1992, 1998). In academic writing, particularly in leadership studies, the terms *change agent* or *champion of change* are usually mentioned as an essential ingredient of leadership, but are not clearly defined. For example, the importance of sponsorship in change implementation is well documented in professional literature, but the term *sponsor of change* is virtually nonexistent in academic writing. Therefore, this research fills this important gap by studying sponsors of change.

Sponsorship of change. Any change initiative, regardless of its scope and type, will be in danger of failing unless the key roles are defined and understood. Conner (1998) very specifically defined four roles that are key to understanding organizational change. Those roles are *sponsor, agent, target,* and *advocate*. Briefly, the sponsor is the individual or group who legitimizes the change. Sponsors have the authority to decide what to change and how to go about achieving the objectives of the change, and have access to the needed resources to achieve the change. Depending on the nature of a particular change, the sponsor may be the company's CEO or a lower-ranking supervisor (Conner, 1992, 1998). The agent is the individual or group responsible for implementing the change. While sponsors of change have the power to initiate and sustain change, agents are the ones who make the change happen—that is, they are responsible for ensuring all aspects of the change are implemented. The target is the individual or group who must actually change. The advocate is the individual or group who desires the change, but lacks power to initiate or sustain it (Conner, 1992, 1998).

Conner (1992, 1998) warned about the importance of sustaining sponsorship. According to him, unless the role and the dynamics of change are well understood and sponsorship is cascaded throughout the organization, the change initiative is at risk of failure. A good sponsor of change must be dissatisfied with the current situation to the degree that the change is viewed as crucial to the survival of the organization, have a very clear picture of what the desired state looks like, hold enough authority to legitimize a change, and be aware of the degree and implications of disruption during change and the impact on organizational members.

Conner's (1992) affirmation of the critical role of sponsorship helped validate my experiences:

> When sponsors don't fully understand a project's implications or are unwilling or unable to take the necessary action, advocates must either convince the sponsors of the importance of the change, be in a position to replace them with people who will provide the needed support (e.g., a coup or recall vote), or prepare for the change to fail. . . . Without the appropriate sponsor's attention, energy, action, and other resources, a major change will remain in the advocacy state or falter after it is announced. (p. 113)

One of the challenges for change leadership, according to Jan DeVish (personal communication, October 6, 2009) is that the concept of sponsorship of change serves as a container for a broad range of meanings and activities crucially important for successful implementation. Variables include different time spans and different levels of complexity of mental processing, angle, stratum, and functionality.

Numerous change management professionals recognize that mismanagement of sponsorship of change is a main reason why change projects fail. A common problem occurs when sponsors see their role as early agreement, but have no further commitment. Good sponsorship of change means sponsors are physically, mentally, and emotionally connected to the project (Anderson & Ackerman-Anderson, 2001; Conner, 1998; Harrison, 1999).

There is agreement among authors and professionals that a sponsor of change must participate actively and visibly throughout the project, provide clear leadership, build a coalition of sponsorship with peers and managers, and communicate effectively with employees. Sponsors of change, regardless of their level, sanction initiatives through influential communication and meaningful consequences (Anderson & Ackerman-Anderson, 2001; Conner, 1992, 1998; Harrison, 1999).

There are two types of sponsors of change: initiating and sustaining. An initiating sponsor of change is the person or group with the power and resources to start the change process. Sustaining sponsors of change use their logistics and their economic and/or political proximity to the targets (i.e., the people who actually have to change the way they work) to ensure the initiating sponsor's directives are implemented (Harrington et al., 2000).

Skills and Qualities of Change Leaders

Considering the differences between stability and transition, the complexity of modern organizations, and people's reactions to disturbed equilibrium, it is clear that leading an organization in times of relative stability requires different approaches and skills than leading an organization in a time of major transformational change. The skills-based model of leadership (Mumford, Zaccaro, Harding, Jacobs, & Fleishman, 2000) frames leadership as a capability model because it examines the relationship between a leader's knowledge and skills, and performance. The model has five components: competencies, individual attributes, leadership outcomes, career experiences, and environmental influences. The model affirms that the targeted development of skills needed for leading organizational change increases the chance of successful implementation of change initiatives. One of the criticisms of the model is that its expansion of skills to areas beyond leadership (such as motivation, critical thinking, personality

studies, and conflict resolution) results in a loss of precision for explaining leadership performance (Northouse, 2007). However, it could be argued it is exactly the model's breadth and lack of precision that allows for its expansion to other areas such as the practice of change leadership.

Kets de Vries (2006) differentiated two views of what constitutes a leader—some view leaders as movers and shakers who instigate change, while others perceive them as "individuals who speak to the collective imagination of their people" (p. 2), inviting them to commit to the change journey on a more heartfelt level. Motivating workers to full commitment and extra effort during change is a cornerstone of change leadership. Halpern (2004) pointed to a substantial body of research linking personality factors, such as the McCrae and Costa's (1997) big five theory of personality to motivate to learn and to lead.

As opposed to Halpern (2004) and Kets De Vries (2006), Chatterjee (1998) defined leadership as a state of consciousness—the evolution of an integral person rather than the conventional social definition of leadership as an outcome of a balanced personality. Personality is, according to Halpern, "a set of conventional social masks and an assortment of occupational skills that we use as a yardstick to measure a person's worth" (p. 30). He pointed out that simply wearing a leader mask does not inspire the leader or anyone else. True leadership comes from a person who integrates the energy of being with vision. The true leader performs not from a sense of contractual obligation, but as a way to realize full potential. Leadership springs spontaneously from an integral person; the true leader serves with love. With the power of love, a true leader outshines those whose only motivation is their love of power (Chatterjee, 1998).

Yarmolinsky (2007) claimed mediation is the change leader's main task. "The leader is a mediator, a moderator, someone who adjusts the facts of change and the intransigent facts of

organizations and institutions" (Yarmolinsky, 2007, p. 47). His view of leading without power, although situated in community development, is equally applicable to organizational change. Change driven by power and formal authority has a very low chance of being successful.

Yukl (2006) suggested change implementation in an organization will be successful if a leader understands the reasons for resistance to change, sequential phases in the change process, different types of change, and the importance of using appropriate models for understanding organizational problems. Complex variables effecting change make it "the most important and difficult leadership responsibilities" (Yukl, 2006, p. 284).

Northouse (2007) gave us evidence that leaders can fill several roles depending on the situation. This approach, termed situational leadership theory (SLT), was originally developed by Hersey and Blanchard (1979). The model was based on the interactions among leaders' task behaviors, relationship behaviors, and the followers' readiness or maturity to perform. It implied that different situations demand different approaches and that leadership includes a directive and a supportive dimension, depending on the employees' competence and commitment to perform.

Contingency theory is similar to situational leadership theory because it "tries to match leaders to appropriate situations" (Northouse, 2007, p. 113). A major difference is that the leader's effectiveness is contingent on matching the leader's style to the context of the setting.

O'Toole (1996) questioned the validity of contingency theory, terming it an "invalid conclusion drawn from a valid observation" (p. 100). He heavily criticized relativism and an it-all-depends approach as a moral error that opens the door for the leader to exhibit inconsistent behavior that may lead to abuse, permissiveness, or other negative consequences. O'Toole proposed, instead, leadership based on trust and strong values. He suggested the success or failure of a leader depends on the leader's beliefs and attitudes and not on technical knowledge.

Leadership of change, O'Toole asserted, "does not depend on circumstances: it depends on the attitudes, values, and actions of leaders" (p. xviii). Along with O'Toole's critique of relativism, Basseches (1984) proposed dialectical thinking as an intellectual tradition representing a third, more advanced alternative to two powerful styles of thought: universal formal and relativistic thinking.

Leaders' Attributes and Behaviors Necessary for Major Organizational Change

The following section illustrates the broad repertoire of skills and abilities required for effectively leading change. The type of change termed transformation is usually linked to transformational leadership.

Burke (2002) reflected on Bass' (1990) claim that transformational leadership is a superior form of leadership closely linked to charisma. Burke suggested charismatic leadership is not required for organizational change, but it should take the form of specific roles and behaviors, such as persistence, "having a clear vision about the desired future state, and self-awareness." (p. 244). However, Burke focused on executive leadership, the senior people at the organization. While he acknowledged the importance of middle level managers, he claimed the "executive-level individuals in the early phases of organization change are key to the effort's ultimate success" (p. 245).

Although not explicitly referring to change leaders, Vaill's (1998) emphasis on the three broad areas of necessary knowledge and skills for managerial leaders (technical, purposeful, and relational) could easily be assumed to apply to change leadership as well. As Vaill elaborated, the managerial leader constantly improves command of the technical details of both the organization in which the leader works and the change he or she is leading. The purposeful leader has the "relational knowledge and skill" (Vaill, 1998, p. 147) to communicate the purpose

of the change, has a command of the technical nature of the change, and can engage and explain the change to all stakeholders. The relational leader is sensitive to others' needs, can work individually and in teams, and behaves in "an honest and spiritually healthy manner" (Vaill, 1998, p. 147).

Anderson and Ackerman-Anderson (2001) differentiated the roles of manager, leader, and change manager from that of change leader and conceptualized the transformation from a manager to change leader as an evolutionary four-step personal journey involving a profound paradigm shift. Numerous differences exist between change managers and change leaders. In a nutshell, change managers are charged with effecting change, but lack the ability (in some cases) and authority (in some cases) to "influence the leaders to transform themselves as part of the organization's transformation strategy" (Anderson & Ackerman-Anderson, 2001, p. 184). When transformation is needed, the call is for a change leader.

Change leaders, according to Anderson and Ackerman-Anderson (2001), possess core competences that reflect the operating principles of conscious transformation. These core competencies include the ability to create change strategy that integrates people, process, and content needs; use process thinking to design and facilitate the change as a structured process; catalyze people's commitment and highest contribution to the change; and build organizational capacity for ongoing change and self-renewal.

Most leadership and change scholars have focused on the early stages of change such as creating a vision, planning, deciding on the first steps, and communicating. Senge, Kleiner, Roberts, and Roth (1999) took a different approach—in investigating causes of high failure rate of change initiatives, they examined the various forces of equilibrium that act to preserve the

status quo in any organization, including managers' commitment to change. They reported among several factors, a prevailing habit of focusing on symptoms and ignoring deeper systemic causes of problems.

Burke (2002) argued a proper match between the leader's personality and the desired organizational culture is critical to successful change. Self-awareness and the need for high emotional intelligence, as well as understanding the leader's capacity to influence, differentiate change leadership from leadership in times of relative stability. According to Burke, "revolutionary change requires strong, powerful leadership, the transformational type. What is the proper balance between powerful leadership and involving organizational members in decisions that directly affect them?" (2002, p. 289)

Empirical Research on Leading Change

The term *sponsor of change* appeared in the empirical literature 20 years ago when Wooten and White (1989) explicitly addressed performance, recognizing the sponsorship role as being pivotal in the change process. Since then, this role in the context of organizational change has not been significantly empirically researched in academic circles, but has garnered more attention in the context of studying leadership, specifically leadership of change. A growing number of published studies in recent years have indicated increased interest in observing leadership in the context of leading change. For example, only three studies on this topic were published in the 1990s. The remaining 32 studies were conducted in recent years (11 in the early 2000s) and the remaining 22 in the past four years.

The importance of leadership to the change management process has been well documented. Yet, there is a lack of integration between the literature in leadership and change management. The leadership literature, especially transformational leadership, is largely

concerned with the capabilities required to enact change successfully. Change has been studied as a contextual variable influencing transformational leadership, but there is very little research in the empirical literature that focuses on the relationship between leadership and change. One exception is the work of Higgs and Rowland (2000, 2005), whose primary research focus has been on change leadership.

In spite of the widely recognized complexity of the role of a sponsor of change, this distinct role does not appear in the empirical literature. Instead, some aspect of a change leadership role has been explored in most studies. This role has been studied in relation to behavior and sometimes competence, but there is very little research focused on the meaning-making, sense-making, or developmental needs and abilities of those responsible for leading change efforts. I was able to identify only two studies focused on sense-making, with modest exploration of leaders' sense-making as it relates to the outcome of the change process.

Within the change management research literature, about half of the studies have been conducted in a qualitative or mixed paradigm approach employing a wide variety of methods. It is striking that most of the research has involved only the behavioral approach and has missed the richness of different cultures of inquiry. For example, according to Bentz and Shapiro (1998), "a strict behaviorist denies the ontological reality of meaning. He focuses solely on observations of behaviors in sequential action" (p. 58). This type of research has further perpetuated the problem of the superficial approach to addressing challenges related to change implementation.

In addition to the separation existing between the literatures on leadership and change, the change management literature is further divided into change leadership and change management studies. For example, studies of leaders in the context of organizational change

examine leaders' behaviors during specific change implementations, yet fail to link these to broader leadership theories (Eisenbach et al., 1999). In change management studies, the emphasis is much more on causal, contextual, and environmental factors and these studies employ predominately quantitative, correlational methods.

In his study, "Change Leaders and Change Managers: Different or Complementary?," Caldwell (2003) confirmed the assumption that change leadership is about creating a vision for change, while change management is about translating the vision into agendas and actions. Caldwell used the Delphi method to delineate different types of change agent roles, such as leadership and management, and identify the specific attributes associated with each role. This analysis resulted in a comprehensive list of 67 attributes, "some empirical and others prescriptive" (Caldwell, 2003, p. 288). Caldwell found that the attributes defined by the experts were congruent with some of the attributes found in the literature. The overlapping nature of some of the attributes (such as "learning from others" and "openness to new ideas," or "adaptability and flexibility") strongly suggested that the roles of leading and managing change are complementary.

In their ethnographic study "Sensemaking and Sensegiving in Strategic Change Initiation," Gioia and Chittipeddi (1991) defined strategic change as "an attempt to change current modes of cognition and action to enable the organization to take advantage of important opportunities or to cope with consequential environmental threats" (p. 433). The study was significant for taking a step beyond the behavioral and toward a more cognitive approach, and for introducing the terms *sensemaking* and *sensegiving* as part of explanatory framework in the context of organizational change. Sensemaking was defined "as construction and reconstruction of meaning by the involved parties as they attempted to develop a meaningful framework for

understanding the nature of the intended change" (p. 442). Sensegiving was defined as "a process of attempting to influence the sensemaking and meaning construction of others toward a preferred redefinition of organizational reality" (p. 442). Gioia and Chittipeddi suggested those processes were evident not only for the president and top management team of the organization they studied, but for middle managers, lower-level members of the organization, and external constituents as well. All were trying to understand the meaning of the proposed strategic change effort, its effect on them, and their role in it.

Gioia and Chittipeddi (1991) found when strategic change is initiated, sensemaking processes aimed at understanding the why, what, and how of change are triggered among all individuals who know about and are affected by the change. The study's findings provided "phenomenological richness by reporting direct evidence of emerging themes" (p. 438) from three different perspectives: the ethnographer's perspective, the informant's perspective, and the outside researcher's perspective.

This study represents one of the very few attempts found in the change management literature to take research beyond the observable behavior of organizational actors. The correlation of change management and cognitive complexity through the concept of sensemaking and sensegiving has been successfully accomplished primarily through masterful use of ethnography. Considering that every organizational change is embedded in organizational culture, it is surprising that more studies have not used the ethnographic method to study change.

In *All Changes Great and Small: Exploring Approaches to Change and its Leadership,* Higgs and Rowland (2005) conducted a study that used mixed research methods with a dominant qualitative paradigm. This is a prime example of creative design in a research study—the study excels in both content and selection of methods and is highly pertinent to the current study. The

authors sought to explore: (a) the approach to change management most likely to be most effective in today's business environment, (b) those leadership behaviors that tend to be associated with effective change management, and (c) how leadership behaviors relate to the underlying assumptions within different approaches to change. In a case study method, 40 participants from seven organizations provided 70 change stories. The key findings provided evidence in support of the view that it is effective to recognize complexity and have an underlying mindset with a master approach to change that seeks planned and uniform implementation in the context of long-term initiatives. One particularly noteworthy outcome of this study is an understanding of how an emergent approach to change occurs. According to Higgs and Rowland, the emergent behaviors and activities "frequently occurred in the context of, or in response to, a more structured and planned change initiative which was 'floundering' or going off course" (2005, p. 145). Higgs and Rowland provided a powerful model for describing and understanding the complexity of the change process and I believe using mixed methods greatly strengthened their study. Neither the qualitative nor the quantitative approach alone would have captured the complexity of change as it happens in practice.

Wall's (2003) doctoral research on organizational change confirmed that change on an organizational level involves change across entire systems within the organization. She observed that change at the macro level involved addressing structural, political, and economic issues of a greater order of magnitude both qualitatively and quantitatively, but the starting point for all change seems to begin at the individual level and requires a shift in consciousness. "Change at the macro level has been well researched, but very little has been done to explore how to facilitate the shifts in consciousness at the individual level that are required to support such new approaches" (Wall, 2003, p. 10).

Several selected studies from the change management literature represent a noble attempt to address various aspects of change leadership such as competencies, attributes, the use of power, behavior, or circumstantial variables. None of them, however, inquired about the leaders' reflections on their own experience of leading change. Such research is available in the leadership literature; however, change is often used only as one contextual variable and not as a main focus of the inquiry in the literature.

In the change management literature, there are assertions that the root cause of failure is leadership behavior. Two studies, Gioia and Chittipeddi (1991) and Higgs (2003), focused on the sense-making process as a precursor to leaders' behavior, but none of them inquired further into either a root cause of change leaders' behavior or competence development. The need for clarification of the change leader's role, and inquiry into the leader's behavior, specifically in a change context, has been clearly articulated, as has been the need for empirical evidence. Further, the primarily quantitative stream of research that attempts to clarify the leader's role in the change process fails to link to the change literature.

What Is Known About the Inner Landscape of a Change Leader?

The literature provides substantial evidence regarding the causal relationship between a leader's inner condition and the outcome of a change effort. For example, Burke (2002) argued that a proper match between the leader's personality and the desired organizational culture is critical to successful change. Change leadership is characterized by self-awareness and high emotional intelligence, as well as by understanding the leader's sphere of influence. These qualities differentiate change leadership from leadership in times of relative stability. In his earlier writings, Argyris (1971) argued changes in managerial attitudes and behavior must usually precede changes in organization design. He pointed out that the basic premise of the

organization development discipline—change of attitudes or ideas (i.e., mental model, metaphor, theory-in-use, or tacit assumption)—comes before the change of the structure or technology of an organization (Argyris, 1971). In a world of constant and unrelenting change, or permanent white water (Vaill, 1996), the demands on leaders who are responsible for facilitating change are substantially increased (Olsen & Eoyang, 2001).

In the permanent white water (Vaill, 1996) of modern business, this flexibility is essential to stay afloat, but is not adequate to steer an organization in a desired direction. To steer the proverbial raft requires a kind of leadership that exhibits the deeper learning and integrative thinking that emerges from a higher level of complexity (Martin, 2007a).

The nature of required skills for leading change has changed dramatically in recent years. Outdated models, tools, and techniques habitually utilized in the past became counterproductive in complex situations requiring adaptive responses (Heifetz, 1994; Olsen & Eoyang, 2001). Understanding a social system's dynamics and having a strategic outlook are essential, but not sufficient, leadership skills. Leadership requires resilience, adaptation to new challenges, and innovation. Cashman (1998) reported a survey conducted by the LeaderSource company that revealed 75% of 53 CEOs and company presidents surveyed considered personal mastery as the quality most relevant to their leadership effectiveness, and 92% admitted mastering a balanced life is personally the most challenging task.

The current literature on change leadership clearly articulates two distinct needs: a need for coherent alternatives to the old, machine-based model for explanation and action to be able to respond to new challenges (Olson & Eoyang, 2001), and a more pronounced need to understand leaders' interior conditions, or their internal journeys, which, according to Scharmer (2007) and Kets de Vries (2006), determine the quality of their external journeys. Anderson and Ackerman-

Anderson (2001) described a compelling sequence of events that demonstrates how created results are rooted in the mindset. According to them, there is a two-way relationship between the external environment and leaders' fundamental assumptions about reality. Leaders draw on events in their environment to shape their assumptions about reality. These assumptions then color the way leaders view the events around them. The leader's internal state—that is to say, beliefs, thoughts, energy, and impressions—comes out of this interplay between basic beliefs about reality and actual events or facts. In turn, the leader's conduct, determined by an internal state, shapes the leader's performance and dependent outcomes. These outcomes become features of the external environment, and the process continues through perception and adaptation (Anderson & Ackerman-Anderson, 2001).

As an alternative to the Lewinian model of change, Scharmer (2007) developed a powerful social technology called Theory U for change leaders to use when meeting their existing challenges. Scharmer believed old social structures are dying and leaders must learn to respond in a way that envisions the "highest possible future, rather than being stuck in the patterns of our past experiences" (p. 5). Leaders must shift from reactive responses and quick fixes on a symptomatic level to generative responses that address the systemic root issues. Scharmer defined *leader* as all people who work to create change, whether they be CEOs or leaders of small groups. "Successful leadership depends on the quality of attention and intention that the leader brings to any situation" (Scharmer, 2007, p. 27). Outcomes depend on the particular inner qualities of the leader. Scharmer used the term *U Process* to refer to the state the leader creates internally that is a precursor to the change that person will lead. In Scharmer's terms, the leader first becomes aware of the "deeper process" he or she must work with, then creates or "holds" a space "that invites others in" (p. xiv).

Following Lewin's (1951) dictum that a system cannot be understood until one attempts to change it, Scharmer (2007) addressed the intertwined constitution of knowledge, reality, and self through his research incorporating phenomenology, dialogue, and collaborative action research. Scharmer coined the term *presencing* (a blend of "presence" and "sensing") to describe operating from the future as it emerges. It means to sense, tune in, and act from one's highest future potential—the future that depends on us to bring it into being.

Scharmer's (2007) theory is significant for the present inquiry into the change leader's inner landscape for its emphasis on the importance of searching for deeper understanding, or sensing, the current challenges of modern times. His theory is also important for mapping the process to access deeper understanding and in recommending a set of practices that enable access of deeper knowing, thus mapping the way to more effective leadership.

Why Leaders' Inner Transformation Must Precede Organizational Transformation

During change, leaders may experience what Weick (1995) called a *cosmology episode*. According to Weick, people experience a cosmology episode when they suddenly feel that the universe is no longer a rational, orderly system. In this shattering moment, the person experiencing the episode may not recognize the situation, the location, or know who can be asked for help. The person panics and becomes increasingly anxious while the person's sensemaking ability seems lost (Coutu, 2003). But, Chatterjee (1998) pointed out, "when an unpredictable environment creates stress and an inability to cope, what we have forgotten is that the environment 'out there' is merely our interpretation of it" (p. 8). Mezirow (2000) defined such a phenomenon as a leader being presented with a "disorienting dilemma" (p. 22) that precedes a fundamental change in perception.

Laske (2000) described the prevailing notion that an organization's mental model cannot be changed unless that change starts with upper management. The mental model of the upper management team emerges from personal growth and this "inner evolution gradually spreads and shapes the organization as a whole" (p. 195).

Anderson and Ackerman-Anderson (2001) and Conner (1998) defined the ability to move beyond superficial change and lead a conscious, purposeful, and profound change as the leader's ability to hear the wake-up call. How deeply the leader understands the wake-up call will determine the change strategy and the quality of change outcome.

Kets de Vries (2001) proposed that to truly understand leadership, we must look beyond the surface to the internal and social dynamics, the complex dance of leaders and followers, and the even deeper, less visible psychological forces at work in individuals, relationships, and organizations. To dismiss these deeper dimensions of analysis is to miss a deeper understanding of life in organizations. Kets de Vries favored a three-dimensional, not two-dimensional, analysis that "probes beneath the surface to discern unconscious fears, hopes, and motivations" (2001, p. 3).

Kets de Vries' core approach to researching change leaders has been to look at dysfunctional behaviors and irrationality (Kets de Vries, 2001, 2006; Kets de Vries & Balazs, 1998, 1999). Most of his work has focused on cognitive and emotional distortions, earning him a reputation as a pathologist of organizations. In his book, *The Leadership Mystique*, he stated the core premise of the clinical paradigm: (1) perception is not reality; (2) irrationality is grounded in rationality; and (3) people are products of their past.

Kets de Vries' (2001, 2006) psychoanalytic framework located the source of adult phenomena in early childhood experience. In the framework, the three threads of mental life are

cognition, affect, and behavior. For Kets de Vries, emotional intelligence is a driving force of the leadership equation and addressing the emotional needs of subordinates is one of a leader's most important roles. This is especially significant during organizational change when all organizational members deal with a heightened level of emotional sensitivity and the degree of the leader's emotional intelligence can easily become a determining variable in people's perception of change. Emotional intelligence has been widely popularized among practicing consultants, often creating a false belief that it can be developed through training sessions and workshops. As evidenced in the literature, developing emotional intelligence is related to personal growth and a shift in awareness, and requires developmental intervention and not learning events alone (Kets de Vries, 2001, 2006; Kets de Vries & Balazs, 1998, 1999).

Life-span developmental psychology (Baltes, 1987) provides another lens for understanding the interior condition of change sponsors. It is defined as:

> The study of constancy and change in behavior throughout the life course (ontogenesis), from conception to death. The goal is to obtain knowledge about general principles of life-long development about interindividual differences and similarities in development, as well as about the degree and conditions of individual plasticity or modifiability of development. (Baltes, 1987, p. 612)

In this study, a segment of developmental psychology that focuses on adults with specific emphasis on mental/learning process is vitally important to support the inquiry into sponsors' mental processes.

Development is different from learning, but the two concepts are often confused or used interchangeably. *Learning* is a change in time (snapshot), while *development* is a change across time (longitudinal) (Cook-Greuter, 1999). Some learning leads to making developmental shifts, but most learning simply reinforces the learner's current developmental station, or frame of reference (Laske, 2006). Cook-Greuter (2004) explained, "most learning, training, and

development is geared toward expanding, deepening, and enriching a person's current way of meaning-making" (p. 3). Mental growth is viewed as vertical development leading to a transformed way of thinking, or, "in its deepest meaning refers to transformation of consciousness" (p. 3). Laske (2006) commented that learning and mental growth through developmental shifts are two fundamentally different processes, yet are often mixed up, which leads to confused outcome studies and ineffective coaching efforts.

Transformative learning theory is close to developmental theory. Transformative learning theory focuses on deep learning and suggests ways in which adults make meaning; it supports the adult's transformation, induced through "contextual understanding, critical reflection on assumptions, and validating meaning by assessing reasons" (Mezirow, 2000, p. 3). Kitchener (1983) conceptualized cognitive processing as a progression of three levels; the first level consists of passive computation, memorization, and comprehension. At the second, *metacognition* level, learners engage in monitoring their progress and products of their engagement in specific tasks. The third, highest of the three levels of cognitive processing, was termed *epistemic cognition*. "Epistemic cognition has to do with reflection on the limits of knowledge, the certainty of knowledge, and the criteria for knowing" (Kitchener, 1983, p. 230). Transformative learning pertains to the highest of the three levels of cognitive processing, epistemic cognition (Mezirow, 2000). The epistemic stage of reflective judgment is a critical determinant in a leader's ability to effectively lead change and an integral part of measuring cognitive development of sponsors.

The literature provides overwhelming evidence of the complexity of organizational change and the need for expanded mental capacity to lead change. A skill-based, behavioral approach to assessing and developing the individual's readiness to undertake transformational

leadership is insufficient to meet the challenge. Even the learning organization concept lacks a sophisticated understanding of adult development and, thus, is insufficient for bringing change if learning and reflecting occur within existing mindsets. Kegan and Lahey (2009) observed:

> It has been nearly 20 years since Peter Senge's *Fifth Discipline* first inspired leaders to think about learning organizations, and more than 25 years since Donald Schon's *The Reflective Practitioner* rekindled the importance of attending, literally, to the mind at work. All over the world today, in every sector, leaders aspire to lead organizations that learn, and to be, themselves, personally reflective about what they do. (p. 5)

Martin—Integrative Thinking

Martin (2007a) introduced the concept of integrative thinking as an alternative to conventional thinking. He defined integrative thinking as the capacity to hold two diametrically opposing ideas. Instead of settling for one alternative, integrative thinkers "are able to produce a synthesis that is superior to either opposing idea" (Martin, 2007a, p. 6). Integrative thinking leads to new cognitive approaches and "a sense of limitless possibility. . . . The integrative thinker welcomes the challenge of shaping the world for the better" (Martin, 2007a, p. 48). Laske (2009) pointed out that Martin was primarily interested in how to open managers' and management students' minds to new, previously unseen, and, therefore, unconsidered opportunities. Focusing on decision making (something ineffable, according to Jaques, 1998), Laske distinguished four procedural steps, seeing the difference between conventional and integrative decision makers as individuals developmentally transition from common sense to understanding and, further, to reason—at least to the extent that the individuals begin to master some degree of dialectical thinking.

Table 2.1 illustrates the difference in thinking during the four-step decision making process between formal logical and postformal (integrative) thinkers. The last column illustrates a hypothetical mapping of Martin's (2007b) decision making steps into the sphere of dialectical

thinking and the associated classes of thought forms and individual thought forms (see Appendix B) that were used for this study and are explained in greater detail in the third section of this chapter (Laske, 2009).

Table 2.1

Decision Making Process Viewed from Formal Logical, Postformal, and Fully Dialectical Perspective

Decision Making Step	Logical Thinkers	Integrative Thinkers	Dialectical Thinkers
Step 1: Determining Salience	Focus only on obviously relevant features	Seek less obvious but potentially more relevant considerations	P: TF 2-4, 6-7 C: TF 8-9, 13-14 R: TF 15-17 T: TF 22-23
Step 2: Analyzing Causality	Consider one-way, linear relationships between variables, in which more of A produces more of B	Consider multidirectional and nonlinear relationships among variables	P: TF 3-4 C: TF 14 R: TF 15-17, 19-20 T: TF 24
Step 3: Envisioning the Decision Architecture	Break problems into pieces and work on them separately or sequentially	See problems as a whole, examining how the parts fit together and how decisions affect one another	P: TF 5-6 C: TF 9, 14 R: TF 15-17, 19-21 T: TF 26-28
Step 4: Achieving Resolution	Make either/or choices; settle for best available options	Creatively resolve tensions among opposing ideas; generate innovative outcomes	P: TF 2-4 C: TF 9, 14 R: TF 15, 17-18, 20-21 T: TF 23, 25, 27-28

Note. Adapted from Martin (2007b) and Laske (2009).

Summary

While all of the above-mentioned approaches to leadership development agree on a need to reach deeper levels in leadership development and to integrate a person's cognitive, social,

and emotional aspects, each school of thought has its own unique method of achieving these goals. Day and Lance (2004) proposed a leadership complexity model linking constructs from constructive-developmental theory with recent work on cognitive, behavioral, and social complexity, based on two great yearnings in human experience—the need for both integration and differentiation, resulting in psychological complexity (Csikszentmihalyi, 1990; Kegan, 1982; Kets de Vries, 2001).

> Differentiation implies a movement toward uniqueness, toward separating oneself from others. Integration refers to its opposite: a union with other people, with ideas and entities beyond the self. A complex self is one that succeeds in combining these opposite tendencies. (Csikszentmihalyi, 1990, p. 41)

The leadership complexity model (Day & Lance, 2004) was developed as a response to the need for leader development as purposeful transformation toward a higher level of cognitive, behavioral, and social complexity. Such a trajectory of growth experiences serves to increase capacity to meet the unforeseeable challenges of the future. Similarly, Harris and Kuhnert (2008) examined leadership from a constructive-developmental perspective and produced evidence of development in three domains: (a) intrapersonally (within an individual), as a shifting focus from what others expect of one's self to self-authorship; (b) interpersonally (between people), as a shift from focus on self to focus on others; and (c) cognitively, as an increased ability to deal with complexity.

The need to develop leaders capable of leading complex change in the 21st century has been articulated loudly and clearly within the scholarly literature. However, there is a proliferation of approaches, methods, and schools of thought regarding how to achieve this development. Day et al. (2009) accentuated the need for an integrative approach as essential:

> Because the human organism is a complex system that cannot be understood adequately by looking at only one part of an interdependent system. . . . No single approach can address the full complexity and richness of the leader developmental process. (p. 4)

Halpern (2004) signaled a high demand for critical thinking, but observed an absence of quality measures of critical thinking and cognitive functioning that is more closely aligned with expertise than with subcomponents of intelligence, such as "using data appropriately, demonstrating causal reasoning, thinking with numbers, and recognizing bias" (p. 146).

There seems to be an agreement among scholars involved in developing leaders that the process of becoming a leader is very much the same as becoming an integrated human being, and those involved in developing leaders must engage with questions of human development (Bennis, 1989; Chatterjee, 1998; Laske, 2006; McCauley & Van Velsor, 2004). The leadership and management literature insufficiently addresses the needs and measurements for high levels of cognitive complexity. The scant amount of research linking leadership and adult development has been limited to that using a constructive-developmental framework (i.e., Fisher & Torbert, 1991; Lucius & Kuhnert, 1999; Strang & Kuhnert, 2009). A large body of research within the adult development field has been centered on cognitive development as a process for developing increasingly sophisticated conceptual structures (Koplowitz, 1990, 2008), but the approach has not yet been widely applied to leadership development and business communities. Therefore, the current study explores the adult development field, especially the domain of postformal thinking research as led by Basseches (1984, 1989, 2005), Commons and Richards (1984, 2003), Commons and Pekker (2008), Laske (2009), Torbert and Associates (2004), and other theorists to understand how sponsorship capabilities could be better understood and developed.

Adult Development

The study of adult development is a relatively recent phenomenon evolved from the early work of Baldwin (1906, 1908) and Graves (1970) and it gained momentum after Piaget's monumental work on genetic epistemology in the 1950s. In his seminal books, *Thought and*

Things: A Study of the Development and *Meaning of Thought or Genetic Logic*, Baldwin (1906, 1908) was the first to set the stage for the rise of developmental psychology by describing the development of human consciousness through stages he described as "pre-logical, quasi-logical, logical, extra-logical, and hyper-logical" (McIntosh, 2007, p. 184). Graves was another pioneer in developmental psychology; his early work expanded far beyond his original intention, which was to validate Maslow's (1968) hierarchy of needs. Graves' (1970) research resulted in a theory of eight levels of human existence. He termed the first six values *subsistence* values and differentiated them from the last two, which he classified as *being* values (Graves, 1970). Graves' work was popularized by Beck and Cowan (1996) in their theory of spiral dynamics.

Hoare (2006) pointed out several reasons for the relatively late scholarly interest in adult development. One was the influence of Freud, who not only maintained that development ended with adolescence, but also framed adult development in negative terms by stipulating what adults should not do or be. Extended life expectancy, which has increased—from age 47 at the beginning of the 20th century in the U.S. to close to age 80 currently—is also a factor in the interest of adult development because the population of adults in the middle and late stages of adulthood has, of course, grown significantly. Finally, until recently, adulthood was seen as linear and marked by aging and significant life events (cf. Erikson, 1950; Levinson, 1978). Qualitative changes in adulthood such as personal growth and realization of one's potential were largely understudied subjects. At the same time, Piaget had such a strong influence on developmental psychology that there was very little interest in looking beyond his formal operations stage. Once the scholarly community realized changes in personality are not limited to childhood and can occur in adulthood, and "some of the tools of developmental psychology

might be used in studying these changes . . . the field of adult development . . . blossomed" (Basseches, 1984, p. 6).

The evidence of rapid growth of adult development as an emerging field of study is illustrated by three recent handbooks on adult development, learning, and research (Demick & Andreoletti, 2003; Hoare, 2006; Smith & DeFrates-Densch, 2008) and a recently published special issue of the *Journal of Adult Development* was dedicated exclusively to the study of complex thought and construction of identity (Sinnott, 2009).

Definition of Development

Development is viewed as a process of transformation based on increasing ability to cognitively evolve from a simple and concrete to a more complex and differentiated worldview through a sequence of meaning-making systems or stages (Kegan, 1982; Loevinger, 1976; Merron, Fisher, & Torbert, 1987; Piaget, 1954, 1964). A significant body of empirical research based on developmental theory provides evidence that the individual's worldview at earlier stages is cognitively simpler and more concrete (Harvey, Hunt, & Schroeder, 1961; Loevinger, 1976) and also more stereotypical and dogmatic (McCrae & Costa, 1980). The research also shows that thinking becomes more complex and abstract, but also more precise and specific, as individuals move to later stages of development (Merron et al., 1987). Further, developmental progression includes transformation into a reordered view at each successive stage, including aspects such as the quality of ethical judgment; capacity for self-awareness; increased capacity to empathize with others who hold conflicting views; and the capacity to understand interpersonal relationships, act on perceptions of mutual interdependence, tolerate higher levels of stress and ambiguity, and understand society and social issues (Bartunek, Gordon, & Weathersby, 1983; Kegan, 1982; Perry, 1981).

Organization of Developmental Theories

Studies of adult cognitive development range from psychologists' preoccupation with individual growth toward self-actualization (Maslow, 1968), autonomy, and integration (Loevinger, 1976), to placing individuals in a social context. This social context "influences rates of cognitive change, motivation, attitudes toward learning and using new knowledge and skills, and health-related variables such as diet and exercise, which can also influence cognition" (Halpern, 2004, p. 128).

Most theories of adult development are classified around three main lines of thinking. These three lines are (a) trait theories that differentiate among adults according to their personality characteristics; (b) phasic or life-span theories, represented by Erikson (1950) and Levinson (1978), that view changes in adult life as age-related; and (c) stage or constructivist theories, which focus on individuals' construction of reality and the ways people respond to change based on how they view and make sense of their experiences (Cook-Greuter, 1999; Marshall, 2009).

Trait theories use various typologies to classify people according to their personality characteristics. For example, Jung (1976) developed elaborated typologies, one of them based on the distinction between extraverts and introverts and their various subtypes (Cook-Greuter, 1999).

Phasic theories divide adulthood into a series of predictable, age-related changes. The most prominent representative theorists, Erikson (1950) and Levinson (1978), saw development as predictable according to a number of common adult roles and pivotal events that follow culture-specific norms and universal patterns (Cook-Greuter, 1999). Erikson's stages or Levinson's eras or periods explore adjustments and maladjustments to life challenges and are

closely linked to chronological age. Although phasic theories are non-hierarchical, Levinson (1978), in his book *The Seasons of a Man's Life*, recognized hierarchically developed stages of cognitive complexity, adaptive capability, and character formation in childhood and adolescence (Marshall, 2009). Hierarchical or stage theories of development imply a sequential order of increasingly complex and integrated coherent systems of "meaning through which individuals make sense of themselves, others, and many aspects of life" (Phillips, Basseches, & Lipson, 1998, p. 86) that cannot be skipped and are unidirectional. The common patterns of such sequentially arranged organizations, sometimes called stages, positions, or levels, represent hierarchical integration of greater and greater complexity, cognitive differentiation, and integration (Basseches, 1984; Cook-Greuter, 1999; Kegan, 1982, 1994; Kohlberg & Armon, 1984; Laske, 2006; Piaget, 1952, 1964). They are considered stable across time and context "except when an individual is in transition between stages" (Phillips et al., 1998, p. 86). Stage theories are useful constructs for explaining "how different people navigate life according to different maps, from the most rudimentary to the most conceptually complex" (Cook-Greuter, 1990, p. 98).

The origins of stage theory lie in the work of Jean Piaget, a Swiss psychologist who investigated the cognitive development of children and adolescents through distinctive stages of growth. Piaget (1952, 1954, 1964) pioneered developmental stage models in his research of the mental growth in children, or what he called genetic epistemology. No researcher to date has had such influence and sparked such interest in cognitive development beyond adolescence. Piaget's monumental work set the foundation for the extension of his research and inspired a substantial array of research in adult development. This research is embedded in the post-

Piagetian era, so its evolution and delineation into several well-defined streams of research are discussed in the next section.

The Legacy of Jean Piaget

Jean Piaget (1954) originated developmental stage models through his studies of children's development in which he described the child's growth as a series of qualitatively different, progressively more complex constructions of the physical world that children grow through as they develop (Basseches, 1984; Kegan, 1982). Drawing on his early work as a biologist, Piaget conceptualized intellectual development as two inseparable processes: organization of and adaptation to the environment. He used four basic cognitive concepts to explain the process of intellectual organization and adaptation: schema, assimilation, accommodation, and equilibrium. Those processes have become essential for future studies of adult development beyond adolescence. For Piaget, intellectual functioning and biological activity were both part of an overall process by which an organism adapts to the environment and organizes experience. Piaget (1952), in *The Origins of Intelligence in Children,* was credited for conceptualizing psychological structures as the dynamic process of *assimilation* and *accommodation*. Assimilation refers to the process by which objects are broken down and incorporated into existing structures; accommodation is the complementary process of modifying or adapting existing structures to accept or incorporate new objects (Basseches & Mascolo, 2009; Piaget, 1952, 1964, 1972).

Piaget described four major stages of increasing differentiation and integration in the formation of adult cognition—sensorimotor, preoperational, concrete-operational, and formal operational—that occur between infancy and adolescence (Piaget & Inhelder, 1969). He

postulated each stage creates a hierarchical sequence with each subsequent stage, integrating the previous stage's structure into a higher, more integrated, and more differentiated form.

In his earlier work, Piaget maintained these qualitative stages form an invariant, irreversible hierarchical sequence. Recent research has revealed cognitive development does not occur in discrete stages and does not occur uniformly across all domains of thinking, but is a gradual process dependent on individual age and personal experiences (Sinnott, 2010). This important distinction is accentuated later in this chapter during the discussion of dialectical thinking and the work of Michael Basseches (1984) and Otto Laske (2009).

Piaget suggested the peak of formal operational reasoning was achieved in adolescence. In his later work, he acknowledged cognitive change may continue in adulthood but did not suggest descriptions or mechanisms for further investigation (Cartwright, Galupo, Tyree, & Jennings, 2009; Piaget, 1972).

Limitations and Critique of Piaget's Theory

Following Piaget's work in the late 1950s and 1960s, a growing number of researchers began to challenge his work in terms of limitations of formal operations as the highest stage of cognitive development (Kohlberg, 1973; Loevinger, 1976; Perry, 1970) and of his lack of attention to the full capabilities of mature adults (Commons, Richards, & Armon, 1984). There is a general consensus that: (a) formal operations are not the highest order of cognitive development; (b) mental growth continues in adulthood; (c) there are other, relatively independent lines of development besides the cognitive domain; and (d) formal logical operations represent fixed systems consisting of small, independent tasks that cannot accommodate factors from the outside or be modified across time (Irwin & Sheese, 1989).

Finally, there is also a consensus, as Basseches (1984) explained, that the limited usefulness of formal operational thought:

> Play[s] a central role only in efforts to solve a very narrow range of problems, and . . . play[s] a subordinate role within the context of more comprehensive forms of thought in other human reasoning efforts. This means that formal operations cannot be equated with epistemological maturity. (p. 45)

Post-Piagetian Research

Groups of adult development researchers known as neo-Piagetian theorists expanded Piaget's work in investigating cognitive development into adulthood (beyond age 25) and provided evidence for up to four stages beyond Piaget's formal operations stage. The stages are commonly known as postformal or postconventional stages (cf., Commons et al., 1984; Cook-Greuter, 1999; Kegan, 1982, 1994). Although Piaget focused his investigations on cognitive development, he recognized the importance of emotion as a central aspect of all activity and acknowledged that emotion and cognition function as interdependent systems (Basseches & Mascolo, 2009). This line of reasoning was followed by Cook-Greuter (1999), Kegan (1982), Kohlberg and Armon (1984), Loevinger (1976), Torbert and Associates (2004), and others, who broadened Piaget's cognitive focus to include social-emotional, affective, and moral aspects under the umbrella of constructive-development theory. Another group, led by Commons and colleagues (Commons, Trudeau, Stein, Richards, & Krause, 1998; Commons & Richards, 1984, 2003; Commons & Pekker, 2008), developed a general theory of behavioral development focused on the content-free structure of task performances (i.e., irrespective of content such as emotional, cognitive, moral, or motor skills) and produced substantial research on postformal development.

The following section contains an overview of various theories following Piaget. At the risk of oversimplification, I group them into two categories: postconventional (or constructive-

developmental) theories and postformal cognitive development theories. Cook-Greuter (1999) explained the two groups as follows:

> Postconventional theories emphasize contextual and process-oriented forms of knowing, and increasingly turn attention to people's inner life. They explore meaning making not only in terms of its mechanics, but also in terms of its human valence and experience. Some theories distinguish between understanding what is merely rationally defensible and logically consistent from what is perceived as meaningful or wise in mature living. . . . To underline this distinction, I prefer to restrict the term "postformal" to theories of cognition that describe more complex, higher-order forms of logical analysis and reasoning (Commons & Richards, 1984; Fischer, 1980; Kohlberg, 1984), and to favor the term "postconventional" for theories that also deal with issues of meaning, value and experiential salience. (p. 30)

This is not to suggest that all the theories mentioned in this section fall neatly into one category or the other, but such delineation helps me position this study within the dialectical tradition as an extension of the postformal cognitive line of research.

I begin with a brief and broadly organized summary of current thought along the overall growth trajectory tiers of preconventional, conventional, and postconventional, as conceptualized by Loevinger, Torbert, and Kohlberg (as cited in McCauley, Drath, Palus, O'Connor, & Baker, 2006). I then provide insights into constructive-developmental theory and some of its most relevant research, followed by an overview of substantial research into a more subtle distinction within postconventional, or postformal, cognitive development. This distinction is evident, for example, in the model of hierarchical complexity (Commons, 2008; Commons & Richards, 2003; Commons & Ross, 2008a), Basseches' (1980, 1984) dialectical schemata framework, and Laske's (2009) *Manual of Dialectical Thought Forms*.

Postformal cognitive development as a separate group of theories is further parsed into relativistic as opposed to dialectical theories. Finally, I provide an overview of the dialectical philosophical tradition and the operational research model, as well as a rationale for applying the dialectical framework when studying sponsors of change.

Progression of Thinking from Preconventional to Conventional to Postconventional

The preconventional tier refers to the most elementary form of meaning-making, usually acquired before age 12, and considered immature or "lacking the complexity required for successful functioning and integration into modern society" (Cook-Greuter, 1999, p. 35). Kegan (1994) found that about 10% of adults fit the description of a preconventional form of thinking.

The conventional tier represents a group of stages where, according to statistical research, 80% of adolescents and adults belong. These stages are termed conventional because they best represent the conventions, or the norms, values, and beliefs of a particular culture (Cook-Greuter, 1999). Conventional ego development theory describes the stages of human mental development from childhood to adulthood that occur mostly unconsciously and as a result of maturation and pervasive cultural conditioning. Conventional stages describe forms of meaning-making that seem required for adults to function in the roles of modern societies. Postconventional ego development, on the other hand, describes the more rare stages of meaning-making in which some adults begin to deliberately and consciously wrestle with culturally programmed responses to life. They begin to examine previously taken-for-granted assumptions and explore the fundamental questions about knowing and reality (Cook-Greuter, 1999).

The postconventional tier, also referred to as postformal or post-Piagetian, is the main domain of this inquiry and is included in the remaining sections of this chapter. The concept of this tier emerged relatively recently as a result of acknowledged insufficiencies in Piaget's work and has produced a rich tapestry of ideas, theories, and lines of research. Only 10% of the population is said to belong to this tier (Cook-Greuter, 1990, 1999; Kegan, 1994). This third tier has been divided and organized in many different and unique ways by individual authors. For

example, some of the best-known terms used to reflect the third tier, or postconventional stage, are self-authoring and self-transforming (Kegan, 1994); individualistic, autonomous, integrated (Loevinger, 1976); individualist, strategist, alchemist, ironist (Torbert & Associates, 2004); predialectical and dialectical (Basseches, 1984; Kramer, 1989; Pascual-Leone, 1984; Riegel, 1973); systematic, metasystematic, paradigmatic, cross-paradigmatic (Commons & Richards, 1984); general systems, and unitary (Koplowitz, 1984, 2008).

Constructive-Developmental Theory

The constructive-developmental theory developed by Kegan (1982) reflects a progression toward greater differentiation, integration, and evolving complexity of meaning-making. Drawing on principles of social construction, constructive-developmental theory posits "individuals make meaning of their experience of periods of change and stability in their lives and the cognitive development of their meaning-making process proceeds in a systematic, sequential, predictable, and increasingly complex way from childhood and into adulthood" (Wall, 2003, p. 71). Kegan (1982) explained:

> The heart of the constructive-developmental framework—and the source of its own potential for growth—does not lie so much in its account of stages or sequences of meaning organizations, but in its capacity to illuminate a universal on-going process (call it "meaning-making," "adaptation," "equilibration," or "evolution") which may very well be the fundamental context of personality development. (p. 264)

Kegan's (1982) model consists of five stages of consciousness that represent a growing ability in meaning-making, or an ability to step back to gain an increasingly complex perspective of one's surroundings as well as one's relatedness to them. The process evolves in the following sequence: in the first order, one perceives and responds by emotion; in the second order, one is motivated solely by one's desires. The third order signals self-definition as determined by the group; in the fourth order, one becomes self-authoring and self-directed. The last, fifth, order

symbolizes interpenetration of self-systems (Cook-Greuter, 1990). The model involves the individual developing an increasing capacity for relatedness to and perspective on the self.

Constructive-developmental theorists (Cook-Greuter, 1999; Kegan, 1994; Rooke & Torbert, 1998) suggest that only a minority of the adult population (between 10% and 40%) currently operates at level 4, the minimum level of functioning required by modern society. The path to self-awareness begins after leaving level 3, characterized by "our world hypothesis and internalizing others' perspectives" (Laske, 2006, p. 117), and it represents a milestone in development. "The acquisition of the third-person perspective enables people to see themselves as separate objects. They become conscious of themselves" (Cook-Greuter, 1990, p. 96). Reaching this threshold appears to be a gradual evolutionary process, yet it is the developmental shift that many individuals find the most difficult to make:

> The internal *experience of developmental change can be distressing*. Because it involves the loss of how I am composed, it can also be accompanied by a loss of composure. This is so because in surrendering the balance between self and other through which I have "known" the world, I may experience this as a loss of myself, my fundamental relatedness to the world, and meaning itself. (Kegan, 1982, p. 374)

Moreover, change at an organizational level is disadvantaged by the fact that few managers who are expected to actively participate in change implementation explicitly and intentionally understand, much less facilitate, the threshold shift in consciousness required by the demands of modern society.

A few years after Kegan's (1982) work on his five-stage model, Kohlberg and Armon (1984) made a significant contribution to developmental studies by extending Piaget's stages beyond adolescence and into the realm of moral reasoning. They conceptualized the evolution of moral judgments as a progression of six stages distributed evenly within the preconventional, conventional, and postconventional tiers (Kohlberg & Armon, 1984). Kohlberg and Armon's

work has been criticized as being male-oriented, culturally biased, and overly focused on individualism. Carol Gilligan (1993) later developed her own line of research on the moral development of women and put more emphasis on interpersonal relationships, compassion, and care.

Loevinger's (1976) pioneering work on the theory of ego development involved documenting overarching aspects of adult development beyond early adulthood into mature age within the cognitive, behavioral, and affective domains. Although she never provided a precise definition of ego, Loevinger considered it a master trait of personality used as the underlying principle in personality organization that develops and generates coherent meaning-making in response to the person's changing experiences (Blasi, Cohn, & Wetsenberg, 1998). Ego development theory ranges over three tiers (preconventional, conventional, and postconventional). Cook-Greuter (1999) further illuminated Loevinger's contribution:

> Loevinger's approach is significant because it constituted a breakthrough in cognitive developmental psychology and measurement when it first appeared, for three major reasons: It used adult women as a sample population at a time when research and conclusions about adult development were customarily drawn from studying males. It was thoroughly grounded in empirical evidence, and it introduced a novel argument for determining a person's stage of development. (p. 2)

The most general ingredients cited by Loevinger (1976) as components of ego development were cognitive style, cognitive complexity, impulse control, and conscious preoccupations, all of which are "dynamically connected in specific ways along a continuum of increasing self-integration, differentiation, and complexity of thought" (Hauser, 1993, p. 25). Loevinger's work is widely recognized not only for the theory it represents, but also for a psychometrically robust assessment measurement tool, the Washington University Sentence Completion Test.

Loevinger's (1976) contributions served as a basis for Cook-Greuter's (1999, 2004) work on further elaboration of the final stage of postautonomous development and Torbert's (1994, 2004) application of constructive-development theory on organizational transformation. Susan Cook-Greuter has been researching the higher stages of Loevinger's model and has refined the final, integrated postautonomous stage and created two discrete stages named "construct-aware . . . [and] unitive" (1999, p. 61).

Stages of Adult Development and Leadership Effectiveness—Implications for Organizations

Research has continued to show a relationship between heightened leadership effectiveness and the later stages of adult development. For example, Lord and Emrich (2001) reported several studies linking cognitive evolution and organizational performance. Strang and Kuhnert (2009) used constructive-developmental theory as a theoretical framework to investigate leadership developmental level as a predictor of a leader's performance ratings. Eigel and Kuhnert (2005) identified measurable characteristics of highly effective leaders: the highest leadership developmental levels (or LDLs) are associated with authentic leadership. Along the same lines, Rooke and Torbert (1998) investigated the correlation between CEOs' ego development stages and organizational transformations. Rooke and Torbert, as well as Fisher and Torbert (1991) offered a compelling perspective: instead of continuing to build people's skills and knowledge, it would be more beneficial to help people developmentally attain the wider vision that enables personal autonomy as well as the kind of collaboration with others that produces an adaptive, self-renewing organization. Fisher and Torbert claimed the "nurturing of later-stage adult development is vital to the process of transforming individuals and organizations" (p. 171). In response to such a need, Fisher and Torbert developed a lifelong

process of transformational learning called a developmental action inquiry (DAI). It is a practical approach to simultaneously conducting action and inquiry as a disciplined leadership practice that "posits a sequential series of increasingly complex, inclusive, and mutually-transforming action-logics through which individual persons, conversations, relationships, organizations, and scientific paradigms may evolve as they intertwinedly act and inquire" (Torbert & Livne-Tarandach, 2009, p. 1). According to Fisher and Torbert, such action helps individuals, teams, organizations, and still larger institutions become more capable of self-transformation and, thus, become more creative, more aware, more just, and more sustainable. The eight individual stages of development are called action logics: opportunist, diplomat, expert, achiever, individualist, strategist, alchemist, and ironist. These eight stages show how individuals, especially managers, interpret their own and others' actions and how they keep power or protect against threats (Rooke & Torbert, 2005). Torbert drew on Jane Loevinger's (1976) Washington Sentence Completions Test (WUSDT) to develop and validate a language-based instrument called the Harthill Leadership Development Profile (LDP), designed to empirically test DAI propositions and to adapt it for workplace use by replacing Loevinger's original sentence completion test with a focus on gender-based items and work-related items (Torbert & Livne-Tarandach, 2009).

Laske (2009) made a radical step out of traditional developmental theories based on holistic views of adult development by suggesting a separation of cognitive and social-emotional trajectory of development. He stipulated that thinking is a process of making sense and is based on concepts, while the social-emotional stage is a process of making meaning, and thus, they followed a separate developmental path and needed to be conceptually separated from each other to understand their relationship. Kegan (1982) favored an integrated approach to development

and justified his position by quoting Piaget: “there are not two developments, one cognitive and the other affective, two separate psychic function, nor are there two kinds of objects: all objects are simultaneously cognitive and affective” (p. 83)

Even though, as Axelrod (2005) suggested, a developmental progression in adulthood may be positively aligned with increased and broader responsibilities in an organization, change at an organizational level is hampered by the fact that few managers who are expected to actively participate in change implementation explicitly and intentionally understand, much less facilitate, the threshold shift in consciousness required by the demands of modern society (Cook-Greuter, 1999; Kegan, 1994; Rooke & Torbert, 1998).

Postformal Cognitive Development

Early development of postformal research. Prior to the early 1970s, it was believed that all growth occurred early in life and that adulthood did not bring any meaningful changes beyond an inevitable decline with old age (Labouvie-Vief, 1980). Unlike the first group of constructive-development theorists described in the previous section, the second group, led by Arlin (1977), Basseches (1984), Commons and Richards (1984), Koplowitz (1984), Labouvie-Vief (1980), Riegel (1973), Sinnott (1984, 2010), and others began to question the relationship between cognition and age, and gradually developed the belief that meaningful cognitive growth continues during adulthood. This belief resulted in new conceptualizations of adult thought and a new stream of research that went beyond Piagetian formal logical thinking. This new stream of research was called postformal cognitive development, described by some “as involving relativism and dialecticism” (Cavanaugh & Stafford, 1989, p. 279).

Definition of cognitive development. Cognition is the mechanism that allows individuals to apply previously acquired knowledge and experience in novel situations

(Koplowitz, 1984). According to Hoyer, Rybash, and Roodin (1989), "cognitive development can be understood, at least superficially, in terms of two factors: basic or acquired processing capacity, and basic or acquired knowledge or content" (p. 295). Hoyer et al. stated that the work of the Piagetian theorists "distinguished between the structure and the content of cognition" (p. 295). Structure involved internal systems of rules that were posited to govern both the way thought is organized and the way reality and knowledge are represented. These structures develop in stages and an individual's problem solving abilities are contingent on the given stage. The content is "the specific information that constitutes a knowledge domain. Content is or is analogous to factual or declarative knowledge" (Hoyer et al., 1989, p. 295). According to Hoyer et al., Piagetian theorists did not view content as an important element for understanding cognitive development (p. 295). The premise of the current study is greatly influenced by the distinction of content and structure within the cognitive development field:

> Content—the subject matter of our thoughts—is not all there is to consider, however. How the thoughts are dynamically constructed—that is, *structured*—lies beneath the surface of thoughts' subject matter. The structure of thought, some of us in the developmental field would argue, is vitally important to understand, oftentimes more than the surface level content it gives rise to. Yet, we have to acknowledge that it takes a different analytical lens to see the underlying structures of thought. To "see through" content's flesh down to its "skeleton" of underlying structure is a capacity that, with appropriate support, can be developed into a skill, and the skill further developed into an art. If we take the path of learning to see the structures of thought and how they work, we can expect our efforts to help others (and ourselves) increase their learning and effectiveness to extend well beyond the norm. (Ross, 2009, p. 1)

Postformal Thought and Leadership

The postformal theorists suggested the existence of a more advanced type of cognition that could be studied to capture some of the salient characteristics of adult styles of thought, such as stepping outside a single logical system of thought and solving ill-defined, open-ended

problems in a relativistic/dialectical system (e.g., Arlin, 1984; Basseches, 1984; Cook-Greuter, 1999; Koplowitz, 1984, 2008; Labouvie-Vief, 1984; Sinnott, 1984).

Heifetz's (1994) theory of adaptive leadership is related to the postformal theorists' perspective of stepping outside a single logical system of thought. By using powerful analogies, that of the balcony and the dance floor, and the image of the pressure cooker, Heifetz illustrated the portrait of the leader as someone who is immersed in the lives of the people (at the dance floor), but also observes the patterns of action (from the balcony), reflects on those experiences, and employs adaptive strategies, such as applying enough pressure to bring people with competing interests and ideas together to solve problems while guarding against danger of building too much pressure to become counterproductive during the process.

Research in Postformal Development

The most prominent postformal reasoning theorists include Arlin (1984); Armon (1984); Basseches (1980, 1984); Benack (1984); Commons and Richards (1984, 2003); Commons, Miller, Goodheart, & Danaher-Gilpin (2005); Demetriou (1990); Fischer, Hand, and Russell (1984); Kohlberg (1973, 1984); Koplowitz (1984); Labouvie-Vief (1980, 1984); Pascual-Leone (1984); Powell (1984); Riegel (1973); Sinnott (1984); and Sternberg (1984). Although most researchers provide a particular definition of postformal thought and how to measure it, there is a common thread of essential elements that permeate most research on adult cognitive development. For example, there is an agreement that "postformal behavior involves one or more of the following: perceiving, reasoning, knowing, judging, caring, feeling, or communicating in ways that are more complex or more all-encompassing than formal operations" (Commons & Richards, 2003, p. 202).

One group (i.e., Commons, Richards, & Kuhn, 1982; Labouvie-Vief, Adams, Hakim-Larson, & Hayden, 1983) operationalized the existence of postformal thought as sets of tasks and developed criteria for assessing postformal thought by measuring task difficulty. Typically, study participants were presented with a set of tasks to perform, often in the form of a test (Cavanaugh & Stafford, 1989, p. 280).

A significant attribute of postformal cognition is the movement from dualistic to relativistic thinking—that is, to a relativistic epistemology (Kitchener & King, 1981; Labouvie-Vief, 1984; Perry, 1970; Sinnott, 1984). Several authors have proposed different sequences with different substages in the development of a relativistic epistemology (see Table 2.2).

> There seems to be consensus, however, on the overall nature of this shift. On the formal level, people hold that the dualistic view that knowledge consists of isolated facts whose truth can be ascertained with certainty, and that truth is independent on the subject. (Benack & Basseches, 1989, p. 98)

Cook-Greuter (1999) described the pattern of the adult formal logical thinker as follows:

> They make decisions based on rational analysis and are actively engaged in orchestrating and controlling the movement of their lives. It is no exaggeration to say that people with a formal operations worldview quite often look at life itself as a task to be accomplished or a technical problem to be solved. In response to this need, there is a wealth of information available about how to solve any problem or achieve any goal. Guides to the five ways of stopping smoking or the twelve steps to enlightenment are readily available. In general, whenever we encounter a new phenomenon, we describe and categorize it and try to fit it into our existing explanations. If it does not fit, we create explanations for its "deviant" behavior that make it fit into our existing way of knowing. The formal operational reasoner is excellent at finding explanations for any state of affairs. In addition, s/he can predict what is likely to happen next and manipulate the components to achieve specific outcomes, extrapolating from the known. Conscious analysis of causes and consequences, deliberate choice of methods, and rational decision making are hallmarks of meaning making at the formal operational stage. (pp. 24-25)

Kramer (1989) offered a similar account of the formal logical thinker, also called mechanistic thinker, situated in a change situation:

> [The] formal logical thinker . . . is analytical, constructing the world as decomposable into its basic elements, whether these are ideal forms, categories, or chainlike causal

> links. In an analytic framework, the world is seen as stable and fixed, with any development being propelled by external forces. Contradiction is impossible, and principles and solutions are seen from only one perspective, as absolute entities. The [mechanistic] thinker makes sweeping generalizations, where people, things, and events are grouped into one category. The natural order of this is for people and events to stay the same. People do not grow or change without being influenced to do so by the environment. Acquisition of knowledge is passive: an objective world exists just waiting to be "discovered" rather than being constructed. Change occurs in an orderly, chainlike fashion. Any event or behavior can be traced to a cause. Causes can be isolated. There are absolute, correct principles which must guide action in all situations; they are universal and hold for all people regardless of differences in background; in addition, there is an ideal world, each person has an ideal personality, and so on. Various aspects of this assumption include the following: 1. there is one correct or ideal solution to the problem, 2. one person or group has the right to impose his or her will on another, and 3. there is a tendency to see only one's side's perspective. (pp. 136-138)

All descriptions of postformal stages of cognitive development portray adults as competent thinkers who are capable of constructing increasingly sophisticated understandings of physical and social realities. Kramer (1989), for example, placed postformal thinkers in the relativistic and contextual realm:

> There is not one right, universal solution to the problem. Change is an inherent feature of reality and generally tends to occur randomly (as the context changes). The broader, social, historical, moral, and physical context influences how one will approach and act in a situation. Tool of knowledge: the lens through which or perspective from which one views a situation will influence how one interprets it. What aspect of a situation one focuses on will influence his or her interpretation of the situation or understanding of the situation. Every person, society, group, and situation is unique. Because every situation is unique and change is random, one cannot predict what will happen in the future with any degree of certainty. There are always unknowns. This entails a statement that a contradiction exists, or conflicting perspectives, etc. Statement of at least two different contexts or perspective which would yield conflicting solutions. In a contextual/relativistic worldview, random change is basic to all reality, and knowledge is embedded in its broader context, whether this context is the cultural/historical one, the cognitive framework, or the immediate physical and psychological context. Prediction is impossible, as all people and events are unique and continually change in unsystematic ways. Consequently, contraction runs rampant. There is no order to such a universe any order is imposed externally or via one's cognitive framework. (pp.136-138)

In addition to conceptualizing the research of postformal thinking as task-based, and as a movement from dualistic to relativistic thinking, scholars differentiate based on the method of extending stage theory into the postformal area.

One group of researchers (including Commons & Richards, 1984; Fisher, 1980; Labouvie-Vief, 1984; Pascual-Leone, 1984; Powell, 1984; Richards & Commons, 1984; Sternberg, 1984) has maintained that postformal cognition attempts to accomplish the same functions as formal cognition, but that the complexity of the patterns of thought and the complexity posited in the objects of thought are at a new level. These researchers have proposed a variety of mechanisms for intellectual development, such as Commons' (2008) model of hierarchical complexity, and have analyzed the nature of the developmental process, rather than the limitations inherent in formal operations. Instead of demonstrating that change does occur, this approach attempts to show how it could and must occur (Commons & Richards, 2003).

Another group (including Arlin, 1977, 1984; Armon, 1984; Basseches 1980, 1984; Koplovitz, 1984; Sinnott, 1984) studied how individuals transcend formal logic. The transcendence encompasses locating the limitations of formal operations and then describing the kind of thinking that enables the individual to surpass these limitations (Commons & Richards, 2003).

Mechanism of Intellectual Development—Complexity of Pattern of Thought

Commons and Richards (1984), Commons et al. (1982), Fisher et al. (1984), Pascual-Leone (1984), Sternberg (1984), and Sternberg and Downing (1982) showed mechanisms for moving from one level of complexity to another and posited that "the continued operation of these mechanisms should result in postformal thinking" (Commons & Richards, 2003, p. 203). Fischer (1980), Fischer et al. (1984), and Sternberg (1984) used spatial dimensions and

geometrical systems to convey the idea of complexity of postformal cognition. Similarly, Commons and Richards (1984), Labouvie-Vief (1984), Powell (1984), and Richards and Commons (1984) used sets of axioms or other system properties to describe the increased complexity of postformal reasoning (Commons & Richards, 2003).

The two foundational and representative theories in this line of research are Fischer's (1980) skill theory and Commons' (2008) model of hierarchical complexity theory. Fisher described the complexities of skill development in a variety of contexts and knowledge domains in 13 skill levels.

The model of hierarchical complexity (MHC) is a formal general, content-free, and domain-independent theory that accounts for and explains other developmental theories (Commons et al., 1998; Krause, 1998; Commons et al., 2007). It is a "standard method of examining the nonlinear activity of constructing the universal pattern of evolution and development" (Commons & Ross, 2008, p. 297) and is based on a theory of general stage development (Commons & Richards, 1984, 2002).

The MHC observes performance on tasks separated from content and organized in a hierarchical order requiring an increasingly complex structure of reasoning (Commons et al., 1998). The model involves a total of 14 stages. The last four stages (systematic, metasystematic, paradigmatic, and cross-paradigmatic) reflect postformal thought and are frequently cited in adult cognitive development literature. By virtue of the mathematical definition of tasks in the theory (Commons & Pekker, 2008), each successive stage is more hierarchically complex than the one that precedes it. Developers of the model used Rasch analysis to test the theory and validate orders of hierarchical complexity (Commons et al., 2007).

Postformal Thought as Transcendence of Formal Operations

Arlin (1977, 1984), Armon (1984), Basseches (1980, 1984), Koplowitz (1984, 2008), and Sinnott (1984) viewed postformal thinking as transcending the limitations of formal operations. For Arlin (1977, 1984), moving from formal to postformal operations involves radical change; it requires a switch from problem solving to problem finding operations (Hoyer et al., 1989). It is the same line of reasoning that Heifetz (1994) explored in developing his concept of differentiating technical from adaptive challenges in leadership. In his paper, Koplowitz (1984) argued that postformal thinking embraces the principles of nonlinear causality, and he conceptualized the postformal domain as consisting of two distinct stages: the general systems stage and the unitive stage. Individuals at the system level experience a systems view of reality (Koplowitz, 1984; Von Bertalanffy, 1976) and they begin to realize that interpretations of meaning are constructed and influenced by personal experience.

Sinnott (1984) used Einstein's (1961) concept of relativity as a metaphor to propose a relativistic framework as a system of relationships among elements. Sinnott replaced the concepts of energy, mass, and speed with a system of relations that coordinates people, whereby a person "who thinks in a formal operational manner could reason within one such system" (p. 203), while "a person who thinks in a postformal manner deals with the problem of integrating local systems into a framework, and deals successfully with the relativity of the system" (Commons & Richards, 2003, p. 203). Basseches (1980, 1984) emphasized the dialectical qualities of postformal thought. He differentiated the idea of form from the idea of thing, arguing that forms are structures whose fundamental function is to change and have system-like properties, while things are structures whose fundamental function is to maintain their stability or identity (Commons & Richards, 2003, p. 203). Basseches (1984) pointed out

that some adults use various aspects of dialectical thinking to make sense of their world. Basseches claimed that dialectical thinking "represents a development beyond Piaget's formal operations stage; i.e., that dialectical thinking describes a more epistemologically powerful way of making sense of the world than the structure of formal operations by itself provides" (pp. 13-14). Basseches' work on dialectical thinking is particularly relevant for this study and is further elaborated on in the next section.

Table 2.2 represents an overview of the most popular developmental theories. The list is limited to the theories mentioned in this dissertation and serves illustrative purposes only.

Table 2.2

Comparative Theories of Adult Development

	Constructive-Developmental Stage Theories		
Theorist	Preconventional	Conventional	Postconventional
Kegan (1994)	1st Impulsive 2nd Instrumental	3rd Socialized	4th Self-authoring 5th Self-transforming
Piaget	Concrete operational	Early formal operational	
Kohlberg (1984)	Stage 1 Obedience and punishment Stage 2 Self-interest	Stage 3 Interpersonal and conformity Stage 4 Authority and social order	Stage 5 Prior rights/social contract Stage 6 Universal ethical principles
Loevinger	Opportunistic	Conformist	Individualistic Autonomous Integrated
Erikson	Industry vs. inferiority	Affiliation vs. abandonment	
Cook-Greuter (1990)	Impulsive Self-protective	Rule-oriented Conformist	Individualist Autonomous

		Self-conscious	Construct-aware
		Conscientious	Ego-aware
			Unitive
Torbert	3/Opportunist	5/Expert	7/Individualist
	4/Diplomat	6/Achiever	8/Strategist
			9/Alchemist
			10/Ironist
Commons & Richards (1984)	9 (= 4a)	10 (= 4b)	11 (= 5a) Systematic operations
			12 (= 5b) Metasystematic operations

Cognitive Developmental Stage Theories

	Formal-Logical Thinking		Postformal	
Theorist	Abstract	Formal	Systematic	Metasystematic
Arlin (1984)	3a Low formal (problem solving)	3b High formal	4a Postformal (problem finding)	4b Relativism of thought
				4c Overgeneralize
				4d Displacement
Armon (1984)	3 Affective mutuality	3/4	4 Individuality	5 Autonomy
Basseches (1984)	Phase 1b: Formal early foundations	Phase 2: Intermediate dialectical schemes	Phase 3: Clusters of advance dialectical schemes	Phase 4: Advanced dialectical thinking
Benack (1984)	4	5	6	7
Inhelder & Piaget (1958)	Formal III-a	Formal III-b	Postformal	Polyvalent logic; systems of systems
King &Kitchener (1994)	4	5	6	7
Koplowitz (1984)		Formal	Systems	General Systems
Labouvie-Vief		Intrasystematic	Intersystematic	Autonomous

(1984)			
Sinnott (1984)	Formal	Relativistic/ relativize systems, metalevel rules	Unified theory: interpretation of contradictory levels

Note. Adapted from Kegan (1982, p. 164), Marshall (2009, p. 88), and Demick and Andreoletti (2003, p. 210).

From Dualistic Toward Relativistic and Dialectical Thinking

As noted earlier, one of the most significant attributes of early postformal cognition is the shift from dualistic to relativistic thinking (relativistic epistemology) (e.g., Kitchener & King, 1981; Labouvie-Vief, 1984; Perry, 1970; Sinnott, 1984). One line of research delineates a reorganization of postformal logic into a new structure that allows for the coexistence of contradictions. This new structure is based on relativistic (Perry 1970, 1981; Sinnott, 1984) or dialectical operations (Arlin, 1984; Basseches, 1984; Riegel, 1973).

Riegel (1973) emerged as a promoter of dialectical thinking, followed by Basseches (1984, 1989) and Laske (2009), while Perry (1970) emerged as the author of a model of relativistic reasoning (Irwin & Sheese, 1989). It is interesting to note that Perry's early work was influenced more by research on the authoritarian personality (Adorno, Frenkel-Brunswik, Levinson, & Sanford, 1969) phenomenon and the Frankfurt School of social sciences than by Piagetian cognitive theory (Irwin & Sheese, 1989). This early work led Perry to propose his model of relativistic reasoning, which stipulates that the authoritarian personality is not a fixed syndrome or a fixed character trait, but should be viewed as an early developmental stage that could be "thus modifiable by education and maturation" (Irwin & Sheese, 1989, p. 114). Perry's research linked the ideas of Adorno et al. (1969) to a developmental framework by linking a mode of formalistic thinking found in people with authoritarian tendencies to dualistic thinking (Irwin & Sheese, 1989).

In his paper "Dialectical Operations: The Final Period of Cognitive Development," Riegel (1973) emerged as a fierce critic of Piaget's work, deeming it inadequate to account for mature thought. Riegel's work was largely influenced by the Hegelian-Marxist philosophical tradition. From the Hegelian perspective, formal operational thought was seen as an alienation of the subject from the world, and Riegel introduced the idea of dialectical thinking as a basis for understanding mature thought and post-adolescent cognitive development. In challenging Piagetian theory, which says that formal operations adequately describe the structure of mature thought, Riegel demonstrated that "dialectical conceptualization characterizes the origin of thought in the individual and society" (p. 350). Riegel suggested that the concept of dialectic operations is a necessary alternative that transcends the limits of formalistic thinking and is important in better understanding mature cognition. Even though Riegel's claims were not supported by a systematic empirical study and he did not provide any organized system for understanding dialectics (Basseches, 1980), his writing is conceptually significant for this study because it emphasizes the dialectic reinterpretations of several key theories relevant to the world of change sponsors, such as the subject-object relation, the controversy over realism versus positivism, and the distinction between concrete and abstract thought.

Riegel (1973) recognized the dialectical foundation of Piaget's theory in the accommodation-assimilation paradigm leading to adaptation and re-adaptation, yet his article ignited considerable debate over the extent to which Piaget's work has or has not adequately taken the dialectical perspective into account. For example, Labouvie-Vief (1990) explained:

> Many contributors to this volume as well as the earlier one attest to the notion that the transformation of cognitive structures from youth to mature adulthood brings, in essence, a reevaluation of the nature of reality and subjectivity. Kitchener and King's research demonstrates how a beginning understanding of the objective as firm and unambiguous and opposed to the subjective gradually loosens to expose the subjective nature of all judgment. The resulting tendency to swing over to a position of relativism is gradually

> balanced as a new concept of objectivity evolves that includes the subjective. As a result of this process, new structures emerge no longer primarily focused on stability, but able to encompass change, transformation, and contradiction. (p. 55)

Dialectical Thinking

In this section, I further explore the dialectical tradition, which pertains specifically to metasystemic stage within the postformal cognitive research that forms the methodological framework for this study. I start with a brief history of the dialectical philosophical tradition, followed by the definition of dialectics and its position within postformal logical thinking. I then provide a more pragmatic description of key features of dialectical thinking and its instrumentation for empirical research purposes, and explain the foundations of the operational research model that are used in this study. In the concluding section, I provide a summary of the current literature on leadership, organizational change, and adult development that inform this study, and a rationale for applying the dialectical framework when studying sponsors of change.

History of Dialectics

The notion that dialectical thinking is the highest form of adult cognitive development has held a prominent place in the history of Western philosophy from Socrates and Plato to Hegel (Basseches, 1984; Laske, 2009; McIntosh, 2007; Nisbett, 2004). The Greek origin of the term *dialectic* means "splitting off," and as a verb (*dialeghestai*) "wandering through words" (Laske, 2009, p. 449). The dialectic is considered "the art of structured conversation" (Laske, 2009, p. 449).

The origins of dialectics go back at least 2,500 years to ancient Greece, when Socrates developed a special way of questioning young adults in the Athens marketplace, a technique that became known as Socratic questioning. Plato later turned the art of Socratic questioning into a method for philosophical conversation (Laske, 2009; McIntosh, 2007).

In the 16th and 17th centuries, the scientific revolution (spawned by discoveries made by, among others, Copernicus, Galileo, Descartes, Bacon, and Newton) replaced the old notion of living in a spiritual universe with a view of the world as rational, quantifiable, and mechanistic. Following Galileo and Descartes, a new conceptual framework of "the world as a perfect machine governed by exact mathematical laws" (Capra, 1996, p. 20) emerged that triumphed with Newtonian mechanics, an achievement that marked 17th-century science.

The Cartesian mechanistic paradigm was challenged in the late 18th and 19th centuries with the rise of the Romantic Movement, which featured a qualitative understanding of patterns of life. Goethe was a central figure in the movement from the Cartesian paradigm to the Aristotelian tradition (Capra, 1996). The renewed interest in the exploration of the mind and consciousness emerged as an important topic in the philosophical tradition of the 17th and 18th centuries.

A powerful line of philosophers whose inquiries were focused on alternatives to mechanical explanations of scientific knowledge has shaped most of the philosophical and scientific traditions to this day. Two philosophers who are often cited as predecessors to Hegel's dialectics are the British philosopher John Locke and the German philosopher Immanuel Kant. Locke was concerned with perception; he argued that the mind is passive and only reflects the images received by the senses—thus, "all knowledge is based on perception caused by external objects acting on the senses" (Russell, 2005, p. 40). In contrast, Kant argued that the mind actively participates in the process of shaping our experience of the world and we each construct our reality (Russell, 2005). Kant believed that mechanistic scientific explanations are inadequate for understanding life and organisms as self-reproducing, self-organized wholes, and proposed to supplement scientific knowledge "by considering nature as being purposeful" (Capra, 1996,

p. 22). He argued that organisms, in contrast with machines, are self-reproducing, self-organized wholes. "Kant became not only the first to use the term 'self-organization' to define the nature of living systems, he also used it in a way that is remarkably similar to some contemporary conceptions" (Capra, 1996, p. 22). Kant's philosophy was important for articulating the limits of understanding, or what he called pure reason. Russell (2005) explained:

> Kant drew a clear distinction between the forms that appear in the mind—what he called the phenomenon (a Greek word meaning "that which appears to be")—and the world that gives rise to this perception, which he called the noumenon (meaning "that which is apprehended"). All we know, Kant insisted, is the phenomenon. The noumenon, the "thing-in-itself," remains forever beyond our knowing. . . . Kant held that there is an underlying reality, but we never know it directly. All we can ever know is how it appears in our minds. (pp. 40-41)

No philosopher in the 19th and 20th centuries has had a bigger impact on the world of Western thought than Hegel (Singer, 2001). Hegel was a follower of Kant who challenged Kant's limits of understanding by reasoning that by pointing to the limits of understanding those limits are transcended. He believed that the mind is real and that philosophy can solve the problems of disharmony in the world because they reside in the realm of thought (Laske, 2009, 2010). Hegel's main legacy is his innovation in logic, or the use of logic to uncover the form of pure thought. In his *Science of Logic* (Hegel & Miller, 1989), Hegel showed that the human mind, in order to make sense of experiences, needs some way to organize these experiences of reality using certain categories (such as being, reality, cause, or limit) and other forms of organization. In his critique of Kant, Hegel argued "such categories could not simply be 'found' in formal logic but had to be unfolded in their linkage to each other through dialectics" (as cited in Laske, 2010, p. 3).

In his masterpiece, *Phenomenology of Spirit*, Hegel (1977) introduced the notion of modern dialectics. He described the evolution of human history as the evolution of

consciousness occurring as unfolding stages (McIntosh, 2007, p. 177). Hegel treated experiences as a dynamic process developing into progressively more complex forms. He called individual consciousness a subjective spirit and explained the developmental process of consciousness as "the delineation of three, essentially cognitive stages, but continues with the description of stages of social interactions" (Riegel, 1973, p. 368).

To fully grasp the significance of Hegel's dialectics for this research, it is important to understand how dialectics transcends two powerful modes of thinking that the Greeks called logos and mythos (Labouvie-Vief, 1990). Logos and mythos have been held to permeate adult cognition since ancient times and to still be prevalent today.

Labouvie-Vief (1990) defined logos as a form of thinking that is:

> Rational, analytical, conscious, abstract or formal logical. . . . Logos thinking encompasses all that can be stated in rational terms, all that appears the same to every mind, all that pertains to discursive thinking and objective truth. It is reflected in the idea that thinking can be mechanized, rendered perfectly precise, free from subjectivity and error, and subjected to intersubjective agreement and uniformity. . . . Mythos thinking relates to the concrete and the organic. It concerns the imagination, that which is private and not easily verified. Its powers of persuasion lie not in the outside and the "objective" but in the inner world—in the emotions and sensibilities. . . . Logos thinking is aimed at the removal of variation, at stability and reliability. Mythos thinking, on the other hand, seizes the novel and leaps out of the constraints of analytical precision. It disturbs the control and stability that are logos' ideal, but it is also an important source of innovation and creativity. (p. 44)

The attempt to build a bridge between the two aspects of mythos and logos reached its peak in Hegel's (1977) *Phenomenology of Spirit*. Hegel (as cited in Bhaskar, 1993) saw logos as the finite and mythos as the infinite, and recognized the struggle between the two as:

> A conflict defined not by the indifference of the two sides in their distinction, but by their being bound together in one unity. I am not one of the fighters locked in battle, but both, and I am the struggle itself. I am fire and water. (p. xii)

By this, Hegel meant that human thinking cannot remain indifferent to the two sides of the mind (Laske, 2009), that it takes a conceptual effort to do justice to the human mind comprising both logos and mythos (Horkheimer & Adorno, 1997).

For anyone involved in studying or practicing organizational change, it is apparent that the logos and mythos modes of thinking are still prevalent in modern business. Leading transformational change, as stated earlier, requires transformational thinking, and to think transformationally implies merging mythos and logos into one stream of consciousness. This can be accomplished, as Laske (2009) explained:

> If formal logic is not left behind or "suspended" (as in irrational ideologies), but if it is integrated into the fabric of translogical, dialectical thought. Developmentally, one would therefore surmise that dialectical thinking springs from formal logical thinking . . . and this is indeed what Basseches has shown in his 1984 study. (p. 217)

In the period from the early 19th to the late 20th century, Hegel's teaching influenced a number of prominent philosophers such as Marx, Adorno, Bhaskar, Sartre, Dewey, and others who saw dialectics not only as a reflection on the working of individual minds, but as a powerful dynamic that "runs the world" (Laske, 2010, p. 2). Various branches of psychology and social science labeled as developmental have their roots in Hegel's philosophy. The various forms of stage theory, popularized by many theorists of adult development, also have their roots in Hegel's philosophy. "It was Hegel, who was really the first to describe how consciousness develops in distinct stages" (McIntosh, 2007, p. 182). It is puzzling that among all the researchers following Piaget who embarked on a quest for understanding how logical thinking develops beyond childhood, Basseches (1984) was the only one who took the pioneering step of demystifying dialectical thinking and made an attempt to link the highest level of postformal thinking to the dialectical tradition (Laske, 2010).

The study and practice of dialectical thinking as a focus is not happening in academe or business. This is partially due to its European roots and lack of broad interest within the American intellectual tradition, which has a stronger emphasis on pragmatism, as well as on a holistic approach to adult development where interests in psychology and spirituality take precedence over philosophy. Other possible reasons range from a perception that "dialectical thinking is too complex for the average person," or that it is an "elitist way of making sense of the world," (Laske, 2009, p. 447) to claims that it is a leftist ideology. Examples of implementing the dialectic as a means for furthering social and political agendas, such as "Marx's attempt to turn Hegel's dialectic 'upside down' in order to unravel human estrangement from potential capability had huge political consequences, which helped give dialectic an additional bad name" (Laske, 2009, p. 450).

For these reasons, the question of how dialectical thinking develops in the average adult has not been explored to any notable extent within or outside of the academic research community in spite of its enormous potential as an effective tool for identifying and solving complex problems of contemporary business and society. Basseches was the first American scholar to attempt to examine dialectical thinking using empirical research in the late 1970s and early 1980s. Because his original work has served as a foundation for this study, it is further explored in the next session.

What Is Dialectical Thinking?

Dialectical thinking, also known as integrative or transformational thinking, is considered the most advanced form of postformal thought (Laske, 2009, p. 116). The two most commonly studied forms of postconventional development are systemic and metasystemic operations. Systemic operations coordinate multiple formal operations of classes or relations to form a

structured whole, or a closed system. Metasystematic reasoning is defined, according to Commons et al. (1982), "as the set of operations necessary to construct the supersystem and to execute the analysis of the systems contained therein" (p. 1059). Basseches (1984) pointed out that dialectical thinking is a postformal stage specific to a metasystemic level of cognitive organization. Basseches explained that "the closed system model is not adequate for problems requiring analysis of (a) multiple systems and their relationships to each other, or (b) open systems which undergo radical transformation" (p. 58). In short, dialectical thinking is achieved only at a metasystemic level. Research has identified three additional postformal stages: paradigmatic, cross-paradigmatic, and transcendental—but so few individuals reach those levels that these additional levels have not been studied extensively (Commons & Bresette, 2006; Pascual-Leone, 1984).

I limit this overview to the most common themes found in the writing of Basseches (1984, 1989), Hegel (1977), Kramer (1989), Riegel (1973), and Laske (1999, 2009):

- operating principles of dialectical thinking;
- movement through forms as opposed to within forms;
- constitutive and interactive relationships;
- treatment of contradictions; and
- emphasis on change, wholeness, and internal relations.

Operating principles of dialectical thinking. What distinguishes dialectical thinking from other forms of postformal thinking is its form of organization (Basseches, 1984). The operating principle for dialectical thinking is the concept of dialectics. Dialectics is defined as developmental transformation of systems over time, which occurs via constitutive and interactive relationships (Basseches, 1984). Basseches' (1984) proposition holds that dialectical thinking is

a more adequate form for understanding cognitive development than it is for formal operations, that it provides a basis for elementary scientific thought, and that it not only complements Piagetian theory, but emphasizes the "basis for creative thinking and adaptation to change in adults, and for advanced scientific thought" (pp. 62-63).

Movement through forms. Basseches (1984) characterized dialectical thinking as movement through forms, as opposed to movement within forms, resulting in developmental transformation of systems over time. Those forms are viewed as temporary modes of existence "rather than immutable monads or elements of existence . . . [characterized by] increasing inclusiveness, differentiation, and integration" (Basseches, 1984, p. 405). The definition of dialectics as movement through forms "presupposes both the notion of movement and the notion of form, and focuses on a particular relationship between them" (Basseches, 1980 p. 405).

Riegel (1973) pointed out the emphasis on the interdependence of form and content in dialectical thinking. In its narrow sense, according to Riegel:

> It deals with the interrelationship between methods and results, in its most general sense, between subject and object. As one person pronounces a judgment, he externalizes a standard which will direct and modify another person's judgment, which, once it too has been pronounced, will produce further modifications. Thus, these interactions set a process in motion which is in continuous flux and only temporarily at rest, namely, at those moments in which a pronouncement takes place. Such a process of evaluation and reevaluation characterizes the thoughts and judgments of mature persons. (p. 360)

Constitutive and interactive relationships. The developmental transformation of a system as viewed through the lens of dialectics is understood and explained in terms of interactive and constitutive relationships. The term relationship implies that a connection exists. The phrase *constitutive relationship* indicates that the relationship between and among parties plays a role in making the relationship what it is. The adjective *interactive* signals that the

relationship is not static, but is characterized by actions of the parties upon each other, which leads to developmental transformation (Basseches, 1984; Benack & Basseches, 1989).

The treatment of contradiction in dialectics. In spite of the differences between formal logic and dialectical thinking, the two approaches do not exclude each other. To the contrary, logical thinking serves as a foundation for dialectical thinking. The crucial difference between the two is in the way they treat contradiction. While logic contradictions are not allowed, are ignored, or are treated as false in formal logic, in dialectics, contradictions are used as a foundation for further discoveries (Laske, 2009). Also referred to as preservative negation (Bhaskar, 1993), contradictions serve to expand a thinker's conceptual field and lead to thinking "outside the box" (Laske, 2009, p. 170). "The issues of identity and contraction separate Hegel's dialectic logic from the formal logic of his predecessors, especially Aristotle and Kant" (Riegel, 1973, p. 348). In Hegel's dialectical theory (discussed later in this chapter), contradictions are not conditions of error and insufficiencies, "but are the most basic property of nature and mind" (Riegel, 1973, p. 351). Most postformal theorists considered an acceptance of contradiction as an integral component of relativistic and dialectical reasoning and emphasized an acceptance of contradiction as an inherent feature of adult reasoning. They also pointed out the importance of integrating mutually contradictory frames of reference or systems as a feature of adult postformal thought (Arlin, 1984; Basseches, 1984; Kramer, 1989; Labouvie-Vief, 1980; Sinnott, 1984). Basseches (1984) reflected on what happens when adults experience limitations of formal logic, a relatively common experience characterized by the unpredictable nature of complex organizational change:

> When life presents adults with frustrations and conflicts which result from the limits of the fixed categories of formal operational thought for addressing a changing reality, I suspect that one of two things is likely to occur. Either the adults will reject formal operational thinking and resort to less logical forms of thought, or the adults will begin to

> reorganize their formal operations within the context of the more epistemologically adequate organization of dialectical thinking. I suspect that supportive circumstances and rich intellectual environments which provide opportunities for careful, critical reflection will facilitate the latter outcome. (p. 63)

Basseches (1984) continued:

> However, when in spite of one's efforts to maintain social stability, contradictions emerge within social contexts which are forerunners of transformation, the dialectical thinker will be able to appreciate the contradictions, accept and even contribute to the process of transformation, and transform his or her roles and commitments accordingly. On the other hand, the uncritical, undialectical pragmatic thinker, oriented only to adaptation to the context in its present form, will perceive the contradictions as a threat. He or she is likely to react by denial, entrenchment, and other manifestations of cognitive rigidity, which are likely to interfere with development in both the individual and the social environment. (p. 221)

Basseches (1984) explained that the achievement of dialectical thinking "is worthy of being called a 'development,' in the genetic epistemological sense of providing a more adequate way of understanding the universe than do formal operations alone" (p. 63) and concluded that:

> Formal operations cannot be equated with cognitive maturity, because formal operations by themselves are adequate only for dealing with a set of closed-system problems which constitute a very narrow sector of the broad range of problems with which adults are confronted. (p. 63)

Riegel (1973) argued that a process of "transforming contradictory experience into momentary stable structures" (p. 357) does not represent thinking, but that such structures represent only objectified products of thinking.

The Key Principles in Dialectical Thinking

The core idea of a dialectic brings together three distinct features—common emphases on *change*, *wholeness*, and *internal relations in dialectical world outlooks*. This philosophical perspective contrasts different worldviews by "hypothesizing a set of fundamental, separate, unchanging beings or elements, which enter into interactions with each other" (Basseches, 1984, p. 404).

Emphasis on change. From the dialectical perspective, change is not seen as an isolated phenomenon comprising a set of separate elements whose interaction with each other can be controlled and predicted. Instead, change is viewed as an evolution, a fundamental ongoing process of becoming, or creating only a temporary form of existence in which old forms give way to new forms. When change occurs in any part of a system, it is influenced by and influences other parts of the system (Basseches, 1984; Kramer, 1989; Laske, 2009).

Emphasis on wholeness. Dialectical forms are viewed as temporary rather than fixed elements of existence, characterized by ongoing processes of differentiation and integration. Instead of seeing the nature of a whole being determined by the nature of its parts, in dialectics the role of a whole is important in making the parts what they are. The emphasis is on:

> Active processes of conceptually organizing and reorganizing phenomena rather than accumulation of fixed truths . . . on the structure and functioning of conceptual systems and collective knowledge as wholes rather than individual mutually independent facts and ideas . . . [and on] the role of internal relations of parts in transformation of conceptual systems. (Basseches, 1984, p. 22)

Emphasis on internal relations. The view that the whole is composed of independent elements or external relations of elements is in contrast to the dialectical outlook, which emphasizes the internal relations within a whole. Basseches (1984) explained:

> The dialectical perspective emphasizes the importance of changes which occur in these internal relations, since as these relations change, fundamental change in what exists occurs. In response to changes in internal relations, new forms of organization emerge, and the nature of the organized parts is changed by the formation of the new wholes. Thus, the emphasis on change, wholeness, and internal relations are interconnected in dialectical ontologies. (p. 22)

How Dialectical Thinking Occurs (Steps in the Dialectical Process)

Dialectical thinking develops through a three-step movement in thought: thesis, antithesis, and synthesis. The first step involves movement from an idea or reflection upon a thought (the thesis) to a new thought (the antithesis). The antithesis is any idea or element that

may not necessarily be the opposite of the thesis, but is excluded from, outside of, apart from, or contrary to the thesis.

The second step involves movement from both the thesis and antithesis to a third thought (the synthesis) in which the thesis and the antithesis (or some aspect of each) are related to each other. In this step, a synthesis is constructed in a more complex form than either the thesis or the antithesis because it integrates aspects of both within some new form of organization (Basseches, 1984). Piaget (1952) described the new syntheses that resulted from conflicts between two differentiated patterns of organized activity as successful instances of assimilation and accommodation.

Development occurs when this dialectical process continues through successive reiterations. Often the synthesis, though adequately reconciling the previous thesis and antithesis, will turn out to be one-sided in some other respect or will be further differentiated from something else. It will then become the new thesis in relation to a new antithesis, and so the process will continue (Basseches, 1984; Singer, 2001).

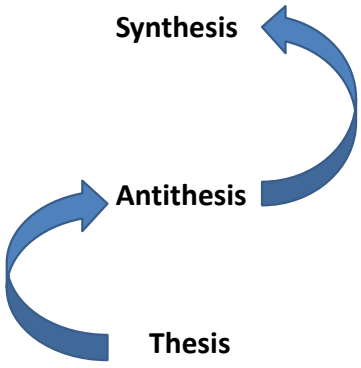


Figure 2.1. The dialectic of development.

Three Models of Dialectics

Within a complex historical tradition, there are many different models of dialectics, depending on the selection and emphasis of specific elements. Three models of dialectics stand out and represent "dialectical thinking at its best" (Laske, 2009, p. 171). They are Adorno's negative dialectic model (2004), Basseches' model (1984), and Bhaskar's model (1993). All three models influenced the development of Laske's (1999, 2009) CDF methodology that was used in this research. Although the three models differ in emphasis, they share a common notion that "thinking is viewed as preceding, as well as determining, doing, but in a dialectically sophisticated way that equally focuses on action in the form of mental action" (Laske, 2009, p. 171).

Adorno's negative dialectics (2004, 2008) is the model of dialectics based on the interpretation of Hegel in the domain of critical theory and is most known for its emphasis on identity and non-identity of objects of thought. Adorno is also known for his critique of ontological as well as positivistic scientific thinking (Adorno, 2008; Laske, 2009).

Basseches' (1984) model is based on the expansion of Piaget's genetic epistemology and inquiry into the genesis of human knowledge. His is the only developmental model among the three. The emphasis is on the dialectical nature of development and uses dialectics as a set of procedures for achieving increasingly higher cognitive equilibrium. Equilibrium in thought or through action in the social world is reached via the awareness of unceasing change and through the transformational nature of thought and reality in the sense of seeing many different facets of what is experienced as real (Basseches, 1984; Laske, 2009).

The third, Bhaskar's (1993) model, is known for a focus on absences, or what Bhaskar termed *preservative negation*. Preservative negation, according to Bhaskar, is a central

dialectical process. It does not destroy but only suspends and transcends that which it negates. The emphasis is on the "dialectic as a means of bringing to light what is hidden, fragmented, ideologically distorted, and *absent* in the sense of 'incomplete' and 'unfulfilled'" (Laske, 2009, p. 171). The dialectic is seen as a set of tools for reflection on a base concept and discovering what is absent from it, then remediating those absences by including them in the base concept at a higher level of insight (Bhaskar, 1993).

Basseches' (1984) and Bhaskar's (1993) models are similar and different in several important ways. Both models imply a special form of negation used in dialectics. Bhaskar considered the concept of preservative negation as central to the dialectical process and as a way of discovering new freedoms for society, as well as deeper insights in the natural and social sciences. Basseches' detailed description of individual schema or thought forms implies a preservative negation, but does not make this negation explicit and is more concerned with the individual's cognitive equilibrium (Laske, 2009).

Empirical Evidence of Dialectical Thinking in Adults

Having established the overall intellectual context in which dialectical thinking as a form of postformal cognitive development is situated, I now turn to the work of Michael Basseches and Otto Laske, who attempted to systematically detail the components and organization of dialectical thinking. Basseches was the first to design an operational framework for his own empirical study of dialectical thinking, and his student, Bopp (1981) created a manual intended for future empirical studies. Laske later updated and refined Basseches' (1984) original work. Both authors' work is significant in terms of providing the foundation on which this study is built. Although I follow Laske's (2009) *Manual of Dialectical Thought Forms* for this study, I

also reflect on Basseches' pioneering work, which served as a basis for subsequent studies of dialectical thinking.

The Pioneering Work of Michael Basseches

Basseches (1984) was the first scholar to create an interpretative framework with coding categories for studying dialectical thinking. He synthesized Perry's (1970) and Riegel's (1973) proposed logics for modeling adult thinking into his own, fifth stage of a Piagetian framework that implies dialectical thinking. This led to the conclusion that dialectical thinking was a postformal and not a parallel path to formal thinking, as Riegel had suggested, "because it required moving beyond dualism of formal operations" (Irwin & Sheese, 1989, p. 115). Basseches (1984) also pioneered an interviewing technique. Instead of asking a subject to solve an experimental problem by manipulation of concrete objects as was done in Piaget's mathematical or logical fashion, he guided subjects to arrive at an articulated conceptualization of the nature of education through broadly focused questions and probes. In other words, as with Arlin's (1977, 1984) research on a shift from problem solving to problem finding operations, and analogous to Heifetz's (1994) theory of adaptive leadership, for Basseches, the focus shifted from the study of problem solving to that of problem definition, whereby the solution cannot be determined or foreseen from the structure of the task (Wood, 1983).

Basseches (1984) identified 24 schemata that play a role in dialectical thinking—schemata are the cognitive or mental structures, or "patterned movement[s] in thought" (p. 72) by which individuals intellectually adapt to and organize the environment. "Schemata can be simplistically thought of as concepts or categories. . . . These schemata are used to process and identify or classify incoming stimuli" (Wadsworth, 2003, p. 15). Basseches grouped these schemata into four different (logical) classes, "suggesting that they can best be understood as

describing *movements in thought*. In this capacity, they function as *foci of attention*" (Laske, 2009, p. 155). The four classes are motion, form, relationship, and meta-form (Basseches, 1984).

Basseches' (1984) empirical study was designed to test the presence of dialectical schemata in a sample of 27 students and faculty at a liberal arts college (nine freshmen, nine seniors, and nine faculty). He designed semi-structured interviews containing basic questions followed by probing questions with the goal of focusing the interviewees' attention on base concepts such as education, and then guided them in their thinking about the base concept. The purpose was to gather empirical evidence through semi-structured cognitive interviews about the use of schemata by individuals of presumably different cognitive-developmental levels. The interviews were transcribed and scored in terms of the degree of fluidity of dialectical thinking evident in the use and coordination of 24 schemata by study participants (Basseches, 1984). Basseches' original framework in defining schemata, and his view that a specific phase of dialectical thinking constitutes a consistent and cohesive worldview, draws on the philosophical tradition of many writers within the dialectical tradition, including Hegel (1977), Marx (2010), Von Bertalanffy (1976), Piaget (1952), and many others (Irwin & Sheese, 1989).

Basseches' research provided empirical evidence for the relevance of dialectical thinking to the analyses of mature thought (Laske, 2009). A subsequent study by Irwin and Sheese (1989) tested the presence of dialectical thinking in a sample of high school students, university students, and university faculty. The study results found statistically significant differences between age groups, indicating that dialectical thinking does develop across educational and age groups.

There are several significant aspects to Basseches' (1984) research. The first key aspect involved validating the cognitive schemata framework "as a description of how people actually

think, by locating in the interview protocols specific instances of the general kinds of moves in thought defined by the dialectical schemata" (Basseches, 1984, p. 402). The second key aspect revealed differences in interviews, "taken as wholes, by comparing interviews with each other on the basis of the numbers and patterns of components of dialectical thinking which could be located within them" (Basseches, 1984, p. 402). Those two aspects are significant because they demonstrated "the utility of the DS (dialectical schemata) framework" (Basseches, 1984, p. 403) and created a foundation for future research, such as the current study.

Another significant contribution of his research is Basseches' (1984) conceptualization of the development of dialectical thinking over four distinct phases defined by the number of schemata used by an individual and the ability to coordinate them within different classes. This contribution is discussed below.

Phasic Model of the Development of Dialectical Thinking

Analogous to neo-Piagetian stage theorists (i.e., Cook-Greuter, 1999; Kegan, 1982; Torbert & Associates, 2004; and others), Basseches (1984) acknowledged that ability for dialectical thinking increases gradually. However, he postulated a phasic model of dialectical thinking rather than a stage model. Basseches suggested that the development of dialectical thinking occurred in four distinct phases. Stages represent discontinuous development reached abruptly, where a "person's worldview is dramatically and holistically transformed" (Laske, 2009, p. 217), while phases imply continuous development in which an attempt to transcend formal logic without "leaving it behind [serves] to create larger mental spaces in which new discoveries about the world and the mind can be made" (Laske, 2009, p. 217). The phases were derived by examining and measuring the percentage and coordination of the use of dialectical schemata by research subjects, from "(a) subjects who had no organized structure of dialectical

thinking, (b) subjects who manifested a partial coordination of dialectical schemata, (c) subjects with a range of well-coordinated schemata, and (d) all subjects" (Benack & Basseches, 1989, p. 96).

In phase 1, the early foundation of dialectical ability appears as a mixture of concrete, formal, and postformal operations, but in an unrelated and unelaborated notion of dialectics (Benack & Basseches, 1989) where class context predominates and there is minimal use of relationship and transformation classes. In terms of Piaget's accommodation/assimilation movement, accommodation to the environment prevails in this phase (Laske, 2009). In phase 2, the intermediate dialectical ability appears; one class of schemata dominates the others and the schemata that appear seem "to provide a bridge between formal and postformal cognition" (Benack & Basseches, 1989, p. 96).

In phase 3, which Basseches (1984) named transitional dialectical thinking, a person exhibits a systemic ability to use thought forms of different classes in coordinated ways, thus increasing fluidity. According to Laske (2009):

> Phase 3 is the most complex and differentiated phase of dialectical thinking development. . . . The cognitive progression signaled by this phase is a complex one since it comprises not only critical and constructive thought forms, but also evaluative thought forms articulating human values (axiology). The phase is also a major step toward increasing coordination of thought forms and they cohere as an organized whole. (p. 235)

In terms of Piaget's accommodation/assimilation movement, in this phase assimilation or thinking action takes the lead, opening the possibility of systemic thinking in which the "spectator view of knowledge is abandoned . . . and . . . thought forms of constructive thinking (context and transformation) are used with sufficient frequency to be able to describe reality in terms of a dynamic transformational system" (Laske, 2009, p. 235).

In phase 4, advanced dialectical thinking is achieved, with all classes of dialectical thought forms well represented (Benack & Basseches, 1989). The thinker has the ability to take a metasystemic view of the world; that is, the ability to put emphasis on a transformational system by joining different systems into a comprehensive whole. For example, an advanced dialectical thinker sees the world as having the living quality of a transformational system through all four quadrants of dialectics simultaneously, as embedded in unceasing change, permeated by absences, and as "a totality of different entities held together by their shared common ground" (Laske, 2009, p. 240).

The Work of Otto Laske

In his book, *Measuring Hidden Dimensions of Human Systems: Foundations of Requisite Organization, Volume 2*, Laske (2009) continued and refined Basseches' (1984) cognitive schemata framework and put it into an organizational context defined by Jaques' (1998) theory of requisite organization. Laske's work is based on the dialectical tradition dating back to ancient Greece and on a deep knowledge of Hegel acquired during his days as a student at the Frankfurt School. In his work, Laske was mostly influenced by Horkheimer and Adorno (1997), and later by Basseches (1984) and Bhaskar (1993).

Laske (2009) introduced "the notion of Four Quadrants of Dialectics as the ontological grounding of [Basseches'] four classes of schemata" (p. 5), renamed schemata into thought forms, and refined Basseches' (1984) table of schemata and his scoring system. The changes and modifications to Basseches' original work is explained in more detail in chapter 3.

Theoretical Framework for Empirical Study of Dialectical Thinking

The four quadrants of dialectics. This research is based on the theoretical foundation for studying dialectical thinking established by Basseches (1984), Basseches & Mascolo (2009),

Bhaskar (1993), and Laske (2008). These authors conceptualized the fundamental structure of human consciousness as dialectics divided into four quadrants. In spite of differences in philosophical and empirical purposes, as discussed in the previous section, Basseches and Bhaskar arrived at essentially the same quadrants, and Laske modified and renamed the quadrants and adapted their internal structure for empirical research and practical applications for teaching and developmental purposes (Laske, 2009).

The following terminology was used by Basseches (1984), Bhaskar (1993), and Laske (2009) respectively, for classification of the four quadrants:

- Basseches' *motion* is similar to Bhaskar's *second edge* (2E) and Laske's *process* (P);
- Basseches' *form* is similar to Bhaskar's *first moment* (1M) and Laske's *context* (C);
- Basseches' *relationship* is similar to Bhaskar's *third level* (3L) and Laske's *relationship* (R); and
- Basseches' *metaform* is similar to Bhaskar's *fourth dimension* (4D) and Laske's *transformational system* (T).

Basseches originally developed his methodology for empirical study and Laske modified it by using different terminology (e.g., he replaced the term *schemata* with the term *thought forms*). I followed Laske's (2009) terminology as it appears in his *Manual of Dialectical Thought Forms* for this research. Table 2.3 represents the four quadrants of dialectics as introduced by Laske.

Table 2.3

Four Quadrants of Dialectics

PROCESS [P] (Emergence)	RELATIONSHIPS [R] (Common Ground)
CONTEXT [C] (Big Picture)	TRANSFORMATION [T] (Living System)

Each quadrant of dialectics reflects a different aspect of what is constructed as real in a person's mind. For example, in the process quadrant, the emphasis is on the process of unceasing change; in the relationship quadrant, the emphasis is on common ground based on the movements in thought through constitutive and interactive relationships; in the context quadrant, the emphasis is on patterns and the ability to see the big picture; and the transformational quadrant is important for contrasting, coordinating, and integrating different systems (Laske, 2009). "They enable the thinker to describe (a) limits of stability of forms, (b) relationships among forms, (c) movements from one form to another (transformation), and (d) relationships of forms to the process of form-construction or organization" (Basseches, 1984, p. 76).

Process quadrant. In the process quadrant, the attention of a thinker is directed toward the process of change. The world is seen as unceasing change and the past and the future exist in the present. Process is driven by change and change is rooted in absence or negativity. Negation is not seen as falsehood or denial, but it appears in the form of incompleteness, hidden dimensions, or lack of fulfillment that drives the development of new forms. Processes, and thus change, occur because there are absences to fill—incomplete realities, lacks, gaps, and desires. There would be no need for change if everything stayed the same all the time and absences could

not be filled (Bhaskar, 1993; Laske, 2009). "When focusing on *process***,** the thinker is inquiring into how things came to be and will develop further in the future. S(he) sees things being in flux, wondering how they got to be what they are" (Laske, 2009, p. 224). However, change is considered as something that comes into being that was not there before, and thus change is not the same as development. Development implies change, but development is more complex, multidimensional, and comprises more than a single point. One of the challenges in leading transformational change, which is by its nature developmental, occurs if a leader thinks only in the process quadrant and neglects to include two other quadrants, context and relationship, which lead to integrated thought processes evident in the transformational quadrant (Laske, 2009).

Context quadrant. In the context quadrant, the thinker is able to see a bigger picture by using base concepts to grasp the nature of organized wholes. The thinker makes those base concepts the elements of a larger constellation or conceptual network of concepts (Adorno, 2004) and by doing so many differentiations, including oppositions, become apparent and can be reconciled (Laske, 2009).

Relationship quadrant. In the relationship quadrant, the emphasis is on how different people, events, or situations relate to each other, how they share a common ground. In other words, the focus is on the thinker's movements in thought through constitutive and interactive relationships. "When focusing on relationship, the thinker searches for what different or opposite things have *in common, the totality they are part of, knowing that only in the shared* totality of things can forms be 'different' from each other" (Laske, 2009, p. 225).

Transformation quadrant. The transformation quadrant reflects metasystemic thinking and represents the synthesis of multiple dimensions in viewing the world (Basseches, 1984; Laske, 2009). A thinker is able to integrate different, even opposing, systems and grasp the

nature of transformation in living organic systems. This form of thinking is achieved by integrating the categories of relationship, process, and context and the ability to describe "(a) limits of stability of forms, (b) relationships among forms, (c) movements from one form to another (transformation), and (d) relationships of forms to the process of form-construction or organization" (Basseches, 1984, p. 76). Laske (2009) pointed out the importance of a deliberate sequence of thought movements in the transformational quadrant:

> Without the existence of Context ("things real"), that is, the physical and social world, there would be no dialectic, no change, and no relationships. There would also be no change if reality as Context were without absences or gaps that "change" could rush into in order to fill them. Therefore, the quadrants of dialectic structurally follow each other in the sequence in which they are presupposed by transformational systems, namely C > P > R > T. (p. 183)

The core capability for transformational, metasystemic, or dialectical thinking lies in the ability to increase the coordination of one's thinking across all four quadrants simultaneously (Laske, 2009).

> In the early phase of dialectical thinking, according to Laske (2008):
>
> The quadrants and their corresponding thought forms are not solidly assembled in the mind. Therefore, the four aspects of dialectic cannot yet be coordinated with each other as is required for thinking of what is real as a transformational system (e.g., a beehive, the human body). (p. 11)

In the following statement, Laske (2009) described how the process of coordinating the thought process across the four quadrants impacts one's ability to see the world. It reflects the essence of a distinction between the structure and content of someone's thought processes. Numerous authors in the current leadership literature have emphasized the need to change mental models, to expand conceptual field, to increase resilience, and so forth. Laske explained the process of how these shifts actually happen. His explanation also illuminates the ontological and epistemological aspects of the current study:

> Depending on what class of thought forms is used, the thinker's focus of attention shifts, and the world is seen differently from one class of thought forms to another. When a thinker can coordinate thought forms from different classes, an integration of perspectives occurs through which an equilibrium is established, not only in the thinker's mind, but also between the thinker and his or her object of reflection and the elements of objects reflected upon by her. In this dialectical process, the thinker transcends in fluidity and elasticity the confines of formal logical operations without erasing formal logical links, but preserving them in a memory store. As this happens, the thinker enters a larger mental space in which opposites are no longer held hostage as being "false," but are seen as mind openers for processes, contexts, and relationships that logical thinking habitually bypasses as contradictory and thus exempts from legitimate consideration. (Laske, 2009, p. 155)

When discussing the four quadrants, Laske (2009) made an important terminological distinction (as indicated above). Although they look identical, dialectical quadrants versus classes of thought forms (used in empirical research) are not the same and can be easily missed by novice researchers. Equating them could be misleading for epistemological and ontological reasons. Laske explained:

> The *dialectical* quadrants identify a higher level of thinking than the *logical* thought form classes representing them for practical use. Quadrants define the dialectics of human consciousness in its wholeness. By contrast, thought forms belong to a finite selection from a much broader set of conceivable thought forms. (p. 177)

Laske continued:

> Equating the dialectical quadrants with classes of thought forms is misleading for another reason. In addition to the "epistemological" reason above, the "ontological" reason is that the quadrants structure the reality of which we are a part, not just the reality we happen to "think about." In short, we are daily experiencing the quadrants as something that makes our experience of the world what it is. And although in logical thinking we do our utmost to separate and isolate the quadrants, we are ultimately totally unsuccessful in doing so. *We are simply overtaken by the dynamics of the real.* And the more "dialectical" we think, the closer we are to those dynamics, and the more "realistic" we are as thinkers. (p. 178)

Dialectical thought forms. Each of the four quadrants of dialectics is comprised of seven thought forms, or patterns of thought (see Appendix C) that characterize the main focus of

the quadrant. A thought form, a notion initially introduced under the term schema in Basseches' (1984) study of dialectical thinking:

> Is a high-level concept that captures the essence of an idea expressed through speech. The thought form names the movement-in-thought that can be thought to have generated the speech fragment. It captures the *sense generator rather than the meaning* generator of human speech. (Laske, 2009, p. 175)

In his search for a term helpful in "operationalizing the idea of dialectical thinking," Basseches (1984, p. 67) noted his choice of the word "schema":

> In Piagetian writings, the term "schema" . . . refers to that part that is common to applications or repetitions of the same action [where "action" refers to material actions as well as mental actions]. Thus, for each kind of *movement-in-thought*, I hypothesized a "dialectical schema" referring to the common cognitive core of its many instances in dialectical writings. These schemata, along with the conceptions of the relationship of each schema to dialectical thinking as a whole, comprise the dialectical schemata (DS) framework. (pp. 67-68)

Basseches' (1984) original conception of dialectical schemata (DS), or Laske's thought forms (TF), have two important aspects: thought forms function and can be used for "foci of attention" (Basseches, 1984, p. 459) and to enable a person "to establish *ever higher levels of equilibrium in thought"* (Laske, 2009, p. 154).

Thought forms are considered the most important tools for understanding and learning how to develop dialectical thinking. According to Laske (2009), "thought forms permit one to stand back from one's own thinking and observe others in their thinking" (p. 461). Using them is both "a reflective and mind-opening experience" (Laske, 2009, p. 461). Laske explained:

> Since language is not just describing, but *creating the world, the way people use thought* forms plainly indicates how they construct it. And how they construct it is a function of their level of cognitive development in terms of epistemic position at a particular time. (p. 461)

Thought forms are also defined as "templates resident in consciousness" (Laske, 2009, p. 461). They are:

> Forms like any other in that they undergo transformations, namely from one thought to another. They capture oscillations of consciousness that can be "summarized" or "commented upon" by higher-level concepts. Thinking based on thought forms can be viewed as setting up a network of concepts that is itself an *organized whole* (Gestalt). For this reason, a thought form is not a concept, but can be expressed by many different concepts. (Laske, 2009, p. 175)

In his early research, Basseches (1984) defined 24 individual thought forms. Laske (2009) later added four more thought forms (for a total of 28), distributed them equally as seven thought forms within each quadrant, and numbered them for scoring and interpretation purposes.

Laske (2009) expanded the function of thought forms in the context of the ontological aspect of reality and human thinking about reality, which cannot be easily separated. He posited that a TF's function is to describe a movement in both reality and in thought. In an attempt to render physical, social, and intellectual processes, the functions of TFs are to:

- Make a thinker aware of the pervasive presence of absences or negativity in what exists.
- Draw a thinker's attention to processes of change, or to creative processes that allow for the possibility of change.
- Point a thinker to the fact that what exists is always embedded in larger change processes.
- Describe moves in thought in which processes of change are characterized in dialectical terms; that is, as processes with a tendency toward genuine development or reversal.
- Instill and preserve fluidity in thought. (Laske, 2009, p. 461)

The following section provides a brief overview of individual thought forms following Laske's numbering from 1 to 28. These thought forms were extracted from Laske's (2009) *Manual of Dialectical Thought Forms* (for a more detailed description of each TF, see the table in Appendix C).

Process-oriented thought forms. Thought form (TF) 1 refers to the acknowledgment of unceasing change; TF 2 indicates dialectical thesis-antithesis-synthesis movement; and TF 3 focuses on the emergence of something new through the interpenetration of opposites in

emerging events and situations, but not on their embedding in a larger process. TF 4 focuses on patterns of movement created by ongoing interaction; TF 5 indicates patterns of interaction, with a focus on motion; TF 6 recognizes the relevance of motion and critiques the denial, hiding, or disavowing of change; and TF 7 acknowledges that what exists is embedded in an ongoing process with past and future as an aspect of the present.

Context-oriented thought forms. TF 8 points to an organized larger whole and parts within a whole, with the emphasis on parts; TF 9 emphasizes a holistic perspective on the balance of a whole, with its parts being subordinate to the whole; and TF 10 emphasizes the complexity of what exists and describes the nature of the whole in functional, mechanical, and structural terms. TF 11 describes the nature of the hierarchy of the system in terms of layers, strata, and levels, with an emphasis on transcendence and inclusion of lower levels as implicit in higher ones; TF 12 focuses on the stability, maintenance, and survival of a system; TF 13 describes intellectual systems, frames of reference, traditions, and ideologies in the context of assumptions, ideas, principles, or paradigms; and TF 14 pays attention to the multiplicity of contexts in which events, situations, and individuals are embedded.

Relationship-oriented thought forms. TF 15 focuses on the existence and value of relationships, and points to common ground and the limits of separation; TF 16 sees value in the relationships of things and forms seen as separate and unrelated; and TF 17 critiques the absence of holistic thinking. TF 18 points out the relatedness of different value and judgment systems; TF 19 focuses on structural aspects of relationships; TF 20 describes patterns of interaction in relationships; and TF 21 describes relationships as constitutive and intrinsic.

Transformational thought forms. TF 22 points to the limits of stability, balance, or internal harmony of a system; TF 23 emphasizes the value of conflict, which leads in

developmental or transformational directions; TF 24 values the developmental movement leading to higher levels of functioning, greater inclusiveness, and establishing a new balance; and TF 25 compares systems in transformation in terms of effectiveness, usefulness, adaptability, and as mutually sustaining. TF 26 pays attention to the process of coordinating two or more systems; TF 27 emphasizes the balance and ability of a living system to preserve identity based on unceasing transformation; and TF 28 integrates multiple perspectives in order to define complex realities.

What It Means to Think Dialectically

To better understand what dialectical thinking is, it is important to accentuate what dialectical thinking is not. Thinking in terms of individual thought forms or a class of thought forms does not comprise dialectical thinking. A person can use the entire repertoire of thought forms and "not be conscious of this organized pattern or represent it to himself/herself as 'dialectical'" (Basseches, 1984, p. 80). Thinking dialectically:

> Entails relating one thought form to another to understand transformational, living systems. With regard to thinking, then, it is *coordination of thought* forms on which the ability to grasp living systems depends. Coordination occurs within a totality and is rooted in relationship. (Laske, 2009, p. 192)

This is in line with Martin's (2007a) position that any kind of generative thinking requires an opposable mind, a mind capable of holding multiple perspectives and transcending them to attain greater understanding and novel solutions.

Basseches (1984) pointed out that dialectical thinking is not a panacea for all intellectual and psychological problems. The willingness to question the boundaries of problems and inquire about what lies beyond those boundaries means that:

> We may be questioning precisely those points of reference which provide us with a sense of intellectual stability and coherence about our world. To think dialectically, is, in a

> certain sense, to trade off a degree of intellectual security for a freedom from intellectually imposing limitations on oneself or other people. (Basseches, 1984, p. 29)

This is an important distinction in understanding sponsorship. While the complex nature of transformational change implies the need for expansion of mental space through dialectical thinking, it may even be counterproductive in sponsoring first degree or transactional change where stability and coherence are desirable and expected.

The ability to achieve metasystemic thinking develops through the relationship of a particular stance or mindset and the use of particular tools. Stance refers to the thinker's attitude toward and positioning in the world (Basseches, 1984; Martin, 2007a) and tools refer to base concepts whose elements get illuminated by comments using dialectical thought forms (Bhaskar, 1993). How a person constructs the world depends on the tools used for understanding the world (Laske, 2009). While stance is often favored as a research theme in both leadership and change management domains, the use of tools for effecting change related to one's stance, also known as a worldview or mental models, has not been widely accepted in studying organizations, particularly in studying sponsorship of change.

Integration: Need for New Research on Cognitive Development as Applied to Change Sponsors

In this chapter, I presented an overview of the major theories and the most significant empirical studies from two largely unrelated fields, organizational leadership and change, and adult development. The current leadership literature indicates a growing trend toward seeing the ability to lead change as the crucial component of leadership. The field of organizational leadership offered a clearly articulated message: leading organizational change is considered the most challenging form of leadership, change is becoming increasingly complex, and interior

conditions or mental models of those leading change in organizational or societal social systems must be taken into consideration.

The recent monumental global economic crisis as well as the turmoil experienced by major corporations demonstrates that theories presented in this chapter are not simply abstract concepts, but are closely related to everyday realities. Literature suggests that decision-makers' mindsets and mental models are powerful factors in predicting organizational failure or prosperity. Most forms of crisis observed today point to human thinking as reasons and solutions. A growing number of authors recognize that a limited, dysfunctional mode of consciousness is a root cause of many factors that turned the recent course of events in the wrong direction. A much deeper understanding of how mindsets work is critical in organizational life, particularly as it relates to leading change. As a crisis state often precedes major transformation, it is safe to suggest that the way any transformation will be implemented will be largely determined by the mindsets of those leading it (Wind, Crook, & Gunther, 2006).

So far, a limited but promising stream of research that applies mental models to the business environment is based on the developmental aspect or the philosophical roots of studies of consciousness. There is also another line of research that comes from brain science and neurological research (i.e., Damasio, 2010; Wind et al., 2006). Damasio (2010) offered critical insights on understanding how the brain constructs a mind and how the brain makes a mind conscious from a scientific perspective.

Change management practice has been considerably enhanced over the past 20 years by incorporating studies from psychology, leadership, and behavioral science into the business realm. However, issues from low success rates of change efforts still permeate the field. The question remains as to how adequate current change management practices are at increasing the

probability of achieving sustainable change. In the practitioners' literature, resistance to change is often cited as a major threat to change implementation and a cause of change failure. Yet, the possibility that managers and sponsors may be limited and blindsided by their own mental models has not yet entered the field of change management research still dominated by quick, inexpensive, and easy-to-administer behavioral assessments, excluding the measurement of developmental cognitive processes. Thus, the room for error in an environment of quick fixes, misleading data, and inadequate solutions remains wide open.

Therefore, in this study I treat the possibility of error in leading change from a dialectical perspective and not from, as is commonly done, formal logic. Formal logic expresses error in the form of "yes/no" or "true/false" statements, which are inadequate for understanding complex change. In dialectics, an error in thinking is considered "one-sidedness, incompleteness, undue simplification, de-stratification, de-agentification—not logical falsehood. In other words, the error lies in not seeing the big picture and its unceasing transformation" (Laske, 2009, p. 218).

It is evident that the external view of leading change is insufficient and there is a need to turn inward, to explore the inner landscape of change leaders. A review of the current literature on change leadership reveals a growing need for new lines of research incorporating the adult development perspective to better understand deeper dimensions of leadership.

Also, there is an indication of growing interest in using qualitative methods to study organizational phenomena, including change, evident in the increased number of phenomenological doctoral dissertations that have recently investigated leaders' thinking or captured the essence of change leader's experiences (e.g., Arnold, 2001; Bullock, 2004; Wall, 2003). However, these studies used content analysis, not structural analysis, to access the structure of leaders' thinking.

Until now, several attempts to access the structure of thinking were limited to the field of psychology and constructive-developmental theory. For example, the Subject-Object Interview (Lahey et al., 1988) is used in several studies. Wall's (2003) dissertation was the first study that used a constructive-developmental theory to study organizational transformation. All available studies linking leadership, change, and adult development have the common characteristic of concentrating on the content (a phenomenological study) or the stage of overall development without isolating cognitive development as a separate domain of study.

There has been a modest integration of psychology and business in a few research attempts to connect business and adult development, but there is a total absence of connecting business and cognitive sciences (Laske, 2009). Current empirical research on cognitive development offers a broad range of models and assessments to measure:

> "Good thinking," whether defined as reasoning skills, logical reasoning, formal reasoning, reflective judgment, problem solving, or critical thinking. These approaches typically represent the specific concepts, elements, or strategies that are central to the particular model of good thinking that a given instrument purports to measure. (King & Kitchener, 1994, p. 75)

Very few of those models and assessments have been applied to organizational leadership, with the exception of Rooke and Torbert's (2005) work on action logics, but none of them specifically addressed sponsorship of major change.

The developmental approach is useful in assessing sponsors' capabilities for leading change at different levels of complexity. Major developmental theories have shown how each stage or phase reflects a network of interrelated epistemological assumptions, showing how people who reason according to the assumptions of each stage have a distinct approach to the way they develop and defend their beliefs about ill-structured problems (King & Kitchener, 1994). The problem with stage theories, such as Kegan's (1982) constructive-developmental

theory, King and Kichener's (1994) stages of reflective judgment, or Perry's (1970) scheme of intellectual and ethical development, is that they do not sufficiently differentiate individuals in terms of their unique profiles. For example, a single score reflecting the same stage of development can be applied to a large number of people. The stages, according to Laske (2009), are too universal a concept to penetrate the core of an individual's unique mode of being.

Understanding the sponsor's sense-making process narrows the broad notion of "stage of adult development" and, in essence, is confined to examining how the individual reasons about and resolves ill-structured problems. In spite of growing evidence that leading organizational change entails dealing with ill-structured problems, many organizations apply well-defined prescriptive models of change to ensure some sense of stability and predictability in the process. These models or systems serve their purpose in situations where change can be controlled, such as incremental or transactional change. However, they are inadequate for accommodating sudden and unexpected disruptions that usually accompany complex transformational change. In those situations, the abilities of change sponsors to think dialectically, focus on relationships between concepts, and engage in a procedure of discovering new, larger mental spaces are pivotal.

Laske (2009) claimed, "dialectical thinking is practically 'made for' dealing with high levels of uncertainty of truth and the ill-structured problems that abound in the world seen as a transformational system" (p. 120). Therefore, in this research, I used dialectics as a form of postformal logical thinking to access the change sponsor's ability to deal with ill-structured problems. This is the first study to use a highly individualized qualitative assessment to determine the structure of a sponsor's thinking through the use of dialectics in the organizational

context. A sophisticated scoring system (explained in chapter 3) allowed me to map individual cognitive profiles in great detail subject to each sponsor's individual epistemologies.

The individual scores helped clarify the change sponsor's strengths in the sense-making process as they related to leading change. The scores also revealed the absence of those thought forms that are critically important for competent sponsorship. Finally, this is the first study that validated a powerful methodology suitable for practical application in developing competent sponsorship capabilities. It also opened up a broad repertoire of topics suitable for further exploration. In chapter 3, I explain the study design, the research methodology, and the study's origins and operational procedures in greater detail.

Chapter III: Research Design and Methodology

The purpose of this multiple case study was to explore the structure of thinking of senior executives in a role of sponsor of large-scale complex organizational change. Specifically, my intention was to explore the existence and degree of dialectical thinking in the 10 study participants who had successfully transformed their respective organizations.

The question guiding this study was: To what degree do executive leaders who sponsor complex, large-scale organizational change engage in dialectical thinking in their work? The term *transformational* indicates metasystemic thinking, or thinking focusing on organized wholes, whereas dialectical thinking focuses on what differentiates those wholes internally and externally (Laske, 2009). This is a multi-case qualitative study with quantitative outcomes. The unit of analysis was an individual in a complex, large-scale change sponsorship role.

A large body of research measuring leaders' effectiveness during the change process as well as in stages of adult development/cognitive development already exists. For example, Torbert and his associates (Torbert, 1994; Torbert & Associates, 2004; Torbert & Fisher, 1992) spent many years exploring the relationship between stages of adult development and managerial effectiveness. However, as discussed in chapter 2, no empirical research has yet integrated cognitive complexity viewed through a dialectical thinking lens within the context of sponsorship of complex, large-scale organizational change.

Origins of CDF Methodology

In conceptualizing his constructive development framework (CDF) methodology, Laske (2009) integrated the findings of the Frankfurt and Kohlberg Schools and connected two fields of study: philosophy and psychology. Both schools followed the tradition of Piaget and Hegel, yet the Frankfurt School did not take adult development in teaching dialectical concepts into

consideration as did the Kohlberg School. In turn, the Kohlberg School did not include dialectics in interpretation of research findings in the domain of adult development. Relying on the teachings of both schools, Laske integrated dialectical thinking with adult development (Laske, 2009).

Another important exploration undertaken by Laske was his focus on the structure of the individual's thought processes from a philosophical perspective. Philosophy, however, did not enable the empirical measurement of thought processes. Thus, following Newell and Simon (1972) (the authors of protocol analysis of problem solving), as well as the work of Kegan and Adorno—both of whom "worked based on scrutiny of language" (Laske, 2006, p. 8)—Laske (2009) merged the two perspectives to develop a methodology for measuring a person's degree of ability for dialectical thinking.

My Research Position

The current research required familiarity with the philosophical underpinnings of at least one assumption about human nature (Kezar, 2004). In addition to exploring Piaget's foundational work on genetic epistemology, I engaged in the philosophical texts of Dewey and Hegel for help in devising my methodology. Dewey's (2004) *Democracy and Education* reflected the pragmatic philosophy that had a strong influence in the United States and helped me understand why the use of dialectics as a research subject has not evoked more interest in this country, and yet why, because of its pragmatic orientation, it has the potential to add a substantial body of knowledge to the study of organizations. Hegel's (1977) *Phenomenology of Spirit* was equally influential as a basis for a system of dialectical thought because most philosophical texts of the 20th century refer to Hegel's work with the dialectic (Kezar, 2004).

The basic beliefs that define any research paradigm are driven by three fundamental questions: the ontological question, the epistemological question, and the methodological question (Guba & Lincoln, 1994). This research was constructivist in terms of understanding how participants construct their worldview or generate their own rules and mental models to help them make sense of their experiences, their work environment, and their role in it.

The constructivist tradition mainly focuses on the subjective individual reality, where self-awareness and development are more important than the influence of an objective external world (Kezar, 2004). I believe the constructivist tradition enriched this study by accessing the deep structure of an individual's mind—in this case, while situated in an organizational context.

Rationale for the Method

The choice of the research method for this study was driven by the practical consideration of understanding the realities of the work complexity of sponsors of change. In addition, it was driven by the appreciation for deeper exploration of the individual mind as opposed to the study of behavioral patterns. Laske's (2009) CDF methodology was selected for the following reasons:

1. Assessment is highly individualized (as opposed to stage theories).
2. It measures deep structures of the mind (as opposed to behavioral manifestations of thinking).
3. It measures the use of thinking tools as opposed to measuring stance.
4. It is grounded in philosophy while using measurement from psychology.
5. Subjects are embedded in business environments, not in education or other groups.
6. It is a qualitative, multi-case study with quantitative outcomes.

The first reason for selecting Laske's CDF methodology was that its assessment is highly individualized. In CDF assessments performed at the Interdevelopmental Institute since 2000, the social-emotional stage has consistently been associated with many different cognitive profiles (degrees of dialectical thinking). This shows that Kegan's (1982) stages are too universal to penetrate to the core of an individual's unique mode of thinking—a single score applied to millions of people (Laske, 2009). Laske's CDF methodology, with individualized profiles is more appropriate and sensitive for the current study.

Second, the CDF method is designed to access the structure of one's mind through selection and scoring of well-defined classes of thought forms (discussed later in this chapter), and not the use of behavioral assessments and personality tests. According to Laske (2009), the method is based on developmental dimensions while behavior is seen only as a set of symptoms that can be examined and explained developmentally. The method was based on the premise that the structure of people's thinking generates the content (Laske, 2008). It provides a metric for assessing fluidity of thought in terms of dialectical thought forms to access, collect, and empirically measure the fluidity of one's thinking.

Third, while understanding epistemic position or stance (King & Kitchener, 1994; Kitchener & King, 1981, 1990) helps us understand people when they use abstractions, information about the development of thinking tools (formal and postformal operations) reveals how abstractions are used to solve adaptive challenges (in contrast to technical problems in closed systems) (Heifetz, 1994). I was not able to identify any other research method that would focus on thinking tools rather than on an epistemic stance (as, for example, Loevinger's Sentence Completion Test, as revised by Cook-Greuter, 1999). Thus, I considered that Laske's CDF method was most appropriate for the focus on thinking tools in the current study.

Fourth, most developmental research in organizations is done by psychologists. For example, Lahey et al.'s (1988) Subject-Object (SO) Interview is used in several studies. CDF methodology is significant because it moves toward dialectical thinking and away from the developmental psychology and behavioral studies that put the emphasis on organizational behaviors, competencies, or operational procedures rooted in formal-logical thinking. CDF is closely aligned with Piaget and Inhelder's (1969) genetic epistemology in that Piaget's mental operations are seen as dialectical moves in thought. With the CDF methodology, Laske demonstrated in what sense dialectical processes underlie social-emotional development, whether measured in terms of the Sentence Completion Test (Cook-Greuter, 1999) or Lahey et al.'s (1988) Subject-Object Interviews.

Fifth, unlike other developmental studies in which subjects and prompts were situated in a variety of educational and social settings, the current study was embedded in organizational settings and the interview protocol mirrored the participants' workplaces. The Laske CDF method best fit the specific organizational context of this study.

Sixth, this was a qualitative study with a quantitative outcome. Phenomenological interviews were administered to capture the structure of the individual's cognitive landscape. Numerical scoring was used only to add precision to coding/scoring qualitative data and for data reporting purposes (Laske, 1999), not for statistical purposes. Laske's CDF method is designed to allow for this type of data analysis.

Laske's (2009) methodology emphasizes that dialectical thinking is "a natural outgrowth of complex logical thinking and uses the latter as a tool for transcending the closed-system feature of formal logic" (p. 323). By using this methodology, we can not only access the unique composition of one's mental models, but also determine with great precision what kind of

developmental intervention is needed to help a person move toward higher stages of cognitive functioning. Thus, my choice of research methodology best corresponded to inquiry into higher order, or metasystemic thinking as an essential component of change sponsors' capacity to lead change.

Research Procedure

This section highlights the two procedures that were followed in this study: the use of research instruments and the interviewing and scoring procedures.

Research instruments. This research used two primary tools—the *Manual of Dialectical Thought Forms* (Laske, 2009) (referred to as the Manual) and the Professional Agenda Interview (Laske, 2009).

The Manual of Dialectical Thought Forms. Dialectical thinking was operationalized in the *Manual of Dialectical Thought Forms* (Laske, 2009). The current manual was used as the primary research tool for the current study. The first manual, the *Dialectical Schemata Manual* (intended for use in teaching dialectical thinking) was created by Bopp (1981) in collaboration with Basseches. The manual consists of 28 thought forms or moves-in-thought that serve as the foci of attention for a dialectical thinker (see Appendix C). The manual is "orient[ed] toward noticing and describing process, context, and relationships, and toward integrating the notions of process, context, and relationships in a model of dialectical evolution" (Benack & Basseches, 1989, p. 96).

Laske (2009) added associated contrasts to each thought form to serve as a tool in scoring interviews. Those contrasts help the researcher explore potential alternatives and grasp the essence of what a speaker said. Laske also added two lists of probing questions for each thought form: one list is intended to assist the interviewer with formulating follow-up questions during an

interview, and the second is a list of probing questions for an easier scoring process. The manual was published as a part of a larger and more robust CDF methodology in which Laske integrated the work of some of the most prominent scholars in management and adult development such as Jaques, Basseches, and Kegan.

The use of thought forms was significant in the current study. While the ontological and epistemological significance of thought forms was explained in chapter 2, in this chapter the function of thought forms was operationalized as a unit of analysis in scoring cognitive interviews (see the list and description of 28 individual thought forms in Appendix C).

Laske (2009) explained:

> In this Manual, I will review each of the individual thought forms by which dialectics, as well as the real world, can be experienced (not just described) as a transformational system. Each of the thought forms is a high-level pattern or Gestalt that one can express by way of many different concepts. Take, for instance, Thought Form #1, unceasing change. This thought form is evoked by a speaker whenever s(he) acknowledges that unceasing change is part and parcel, if not the core, of the human condition, and there is no escape from it. This is a stance, but through TF #1 it becomes a tool as well. The other 27 thought forms made explicit in this Manual are closely related to Thought Form #1, contributing other aspects not evident while focusing on unceasing change alone. (p. 451)

Table 3.1

Table of Dialectical Thought Forms (reprinted with permission from Laske, 2009)

Process	Context	Relationship	Transformational (Metasystemic)
1. Acknowledgment of unceasing change	8. Contextualization of parts within a whole, emphasis on part	15. Limits of separation. Focus on existence and value of relationship	22. Limits of stability, harmony, and durability (including quantitative into qualitative changes)
2. Preservative negation, inclusion of antithesis or "other" (thesis-antithesis-synthesis movement)	9. Equilibrium of a whole; emphasis on whole	16. Value of bringing into relationship	23. Value of conflict leading in a developmental direction

3. Creation of new through interchange of opposites	10. (Description of) structures, functions, layers, strata of the system	17. Critique of absence of holistic thinking	24. Value of developmental potential leading to higher level of individual and social functioning
4. Patterns of interaction as a source of movement	11. (Emphasis on the) hierarchical nature of systems comprised of layers	18. Relatedness of different value and judgment systems	25. Evaluative comparison of systems in transformation
5. Practical, active character of knowledge	12. Stability of system functioning	19. Structural aspects of relationship	26. Process of coordinating systems
6. Critique of denying, hiding, or disavowing change	13. Intellectual systems: frames of reference, traditions, ideologies	20. Patterns of interaction in relationships	27. Open, self-transforming systems
7. Embedding in process, movement	14. Multiplicity of contexts (non-transformational)	21. Constitutive, intrinsic relationships (logically prior to what they relate)	28. Integration of multiple perspectives in order to define complex realities, critique of formalistic thinking

The Professional Agenda Interview. Dewey (2004) observed that people engage in reflective thinking only when faced with real problems. Thus, the Professional Agenda Interview Protocol was designed by Laske (1999) to mirror the actual workplace. It was based on the premise that "in their organizational life, executives form implicit theories of themselves, the organization they are part of, and their relationship to the organization" (Laske, 1999, p. 16).

The interview was semi-structured, comprised of a series of open-ended questions. The participants were asked about their role and tasks, their workplace, and their own professional agenda.

The Professional Agenda Interview Protocol used the metaphor of the Three Houses (see Figure 3.2). The metaphor was used to access the structure of the interviewees' internal workplace within which their work performance took place. The Three Houses metaphor addressed the three mental domains of the workplace: self house, task house, and organizational house. This metaphor helped me access the way individuals internally constructed their work in terms of their own frame of reference and how they conceptually formed an organized whole.

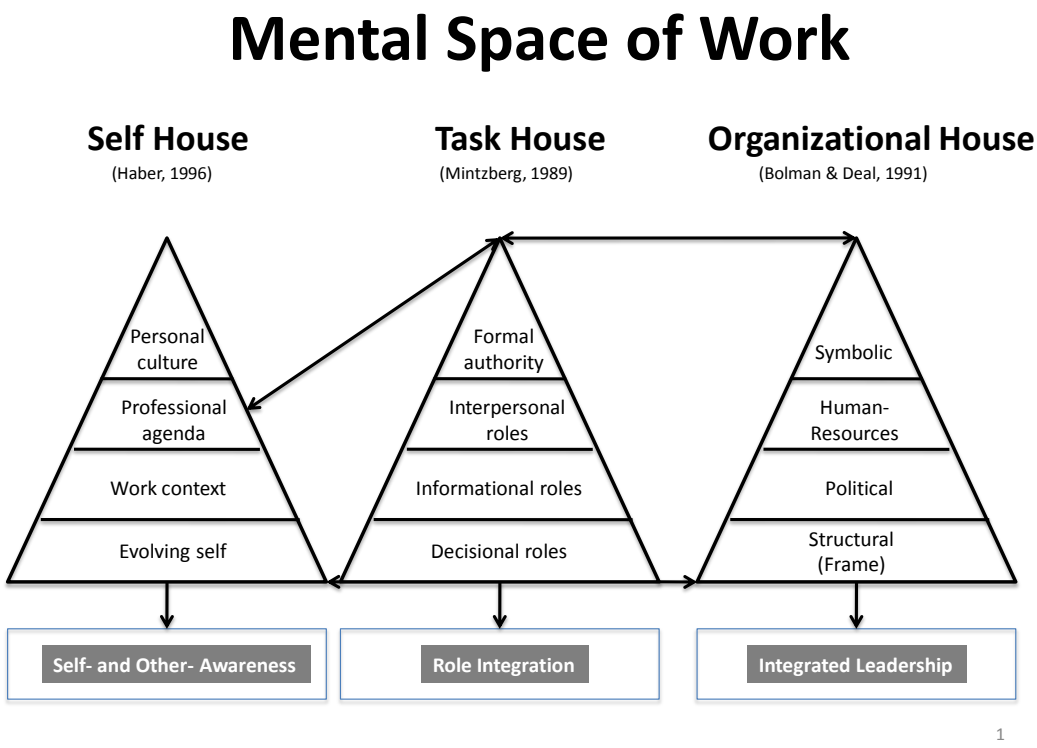


Figure 3.1. The Three Houses metaphor diagram—the framework for the Professional Agenda Interview (reprinted with permission from Laske, 2009, p. 333).

Laske (2009) explained the rationale behind the Three Houses metaphor:

> The mental space of work is partitioned into three relatively independent, yet interdependent spaces, namely the self house, the task house, and the organizational (environmental) house. The critical issue in the internal work workspace is the relationship between the self and the role. The cognitive interview is structured to study empirically the issue of how the work of the "self" feels and acts within a particular role and how are they related.
>
> For instance, the task and the organizational houses are constructed by organizational members ultimately in a way to point back to their self house, the way they presently make meaning and sense of their own life and work. . . . All that can be known and said by an individual about his or her roles, tasks, professional agenda, and relation to an organization, is the result of a mental process firmly anchored in the individual subjective consciousness. (p. 276)

Laske (2009) continued:

> The professional agenda is more than a list of goals to accomplish. It is also a set of assumptions an individual is making about the relationship between self and role, and the personal values and self-development mandate to follow regarding work in that role. (p. 280)

Laske (2009) also commented, "the way in which the Three Houses are actually constructed by adults based on the self house has important consequences for how an individual's work gets done and is fused with broader organizational efforts" (p. 279). The task house helped access the individual's internal construction of his or her own function and authority.

As empirical studies conducted by Mintzberg (1989) and others have shown, one can usefully distinguish four aspects of executive role performance in an organization: (a) formal authority and status, (b) interpersonal roles, (c) informational roles, and (d) decisional roles. Mintzberg (1989) emphasized the importance of managerial formal authority, "from formal authority comes status, which leads to various interpersonal relationships, and from these comes access to information. Information, in turn, enables the manager to make decisions and strategies for his or her unit" (pp. 15-16). Therefore, executives must "have insight into their own work, [as] their performance depends on how well they understand and respond to the pressures and dilemmas of the job" (Laske, 2008, p. 22).

> In contrast to the self house, the task house addresses the *Role* of an individual in MAH [management accountability hierarchy] and how cognitive sense is made of it. Moves-in-thought in the task house therefore reveal how the individual construes level of accountability (stratum), work complexity, and the tasks that flow from the role, as well as how her different roles interrelate. Capturing these moves via interview and the associated Fluidity Index will make it clear how systemic an individual's grasp is of his or her task performance. (Laske, 2009, p. 285)

In the task house, the emphasis was on a relationship between self and role and on their integration. Laske (2009) emphasized the importance of the complexity of the cognitive profile in achieving such integration:

> While typically the role receives more attention than the self, the self may fail in his or her role due to lack of peer or managerial attention. Because of this, the fact that the self as a knower engages with thought forms to construct and interpret the world is of the highest importance. Thought forms are high-level abstractions that bridge the gap between the self ego-centrically [sic] immersed in itself and the accountability of the professional role. The way dialectical thought forms are used decides how emotions are experienced, interpreted, and put to use, and whether meaning-making conflicts can be successfully reframed or not. (p. 278)

The emphasis of the organizational house was on the relationship of an individual's work within the larger social environment and on his or her ability to hold multiple perspectives concerning the organization (Laske, 2009). The organizational house was constructed based on the work of Bolman and Deal (2002), who distinguished four qualitatively different perspectives, or frames, from which to conceptualize organizational events: (a) structural, (b) political, (c) human resource, and (d) symbolic.

> The structural frame emphasizes the division of labour and hierarchy of command, the political frame focuses on groups competing for power and resources, the human-systems frame explains how human needs are fulfilled in the organization, and the symbolic frame explicates what holds an organization together as a culture, and dynamically as a ritual and play. (Laske, 2009, p. 287)

As a leader, particularly when in a sponsorship role, an executive who remains absorbed by only one of these four perspectives is at risk of failure. Rather, "he or she must be able to deal with structure (structural frame), need (human resource frame), conflict (political frame),

and present loss or future success (symbolic frame) simultaneously" (Bolman & Deal, 2002, p. 420).

> Each of the four frames gives rise to different scenarios, schemes of action, and interpretations of where the organization stands with regard to its employees and the outside world. . . . Since these frames underlie executive action, they are not only thought forms, but they define alternative action scenarios. Each organizational event has a structural, political, human-resource, and symbolic (i.e., cultural) implication. It is up to the executive to determine which of these implications is paramount in a given situation and the aspect of aspects to which he or she should pay primary attention. (Laske, 2008, p. 11)

Laske (2009) asserted, "there is no way to hold even two of these perspectives without dialectical thinking" (p. 297).

Participants

For the purpose of this study, 13 participants were initially selected based on nominations from consultants and business associates. I sent solicitation letters to a network of consultants, executive coaches, and senior executives (see Appendix D). The nominees were informed about the scope and purpose of the study, and asked for a time commitment of two to three hours for two sessions (see Appendix E). The first session was used for conducting the interview, and the second session was optional to the participant and used for feedback and validation purposes.

Participants met the following criteria. They:

- were actively involved in sponsoring a major change initiative at the time of the interview or in the recent past;
- had sponsored change in one of three domains: reengineering, process improvement; creation of new operational frameworks, new product, or service; or whole-system transformational change;
- were recognized as effective sponsors of change by their peers and superiors;
- had demonstrated the ability to articulate their thinking to others;

- were recognized by subordinates and/or peers as higher-order thinkers;
- were recognized for effecting significant change(s) within their followers; and
- were interested in and able to reflect on their experiences as sponsors of change.

I submitted an application to the Institutional Review Board (IRB) for the Leadership and Organizational Change program at Antioch University for permission to conduct the study (see Appendix F). Upon obtaining a written approval to conduct the study, I began the selection process and established contact with participants. During the selection process, I personally spoke with all nominees or their assistants, briefing them about what to expect and providing them with the interview protocol. Upon completing all 13 interviews, three nominees were eliminated from the study. Two persons withdrew from the study, one by not responding to my request for clarifying certain sections in the interview transcripts that were inaudible due to poor sound quality in the recording, and one by not responding to my inquiry for clarification of some parts of the interview and my invitation to discuss the results of the assessment. In addition, the second nominee had a reputation of being a successful change agent but mostly in a consulting role working for other outside organizations and did not sponsor a transformational change in her own organization. The third nominee did not meet the selection criteria; he was a CEO at the time of his company's acquisition by a large foreign enterprise and was appointed by the new owners to integrate the two organizations. Our interview conversation revealed that he did not really initiate a major transformational change but was more involved in implementing strategy designed by someone else, and the outcomes of that change were very different from the sample. I felt that he did not meet the criteria stated above and, therefore, I did not include him as a participant in this study.

Data Collection/Interviewing Procedure

To use the CDF cognitive assessment, a researcher must be trained and certified by Dr. Otto Laske, the author of the assessment. The main preconditions for successful interviewing are the interviewer's skills in cognitive interviewing and dialectical listening.

I learned how to conduct and score cognitive interviews by studying with Dr. Otto Laske at the Interdevelopmental Institute and I earned the designation of Master Certified Developmental Coach/Consultant (see Appendix A). The training comprised of completing four 6-week classes, two 8-week classes, and four complete case studies, including reports and delivering feedback to participants on cognitive, social-emotional, and behavioral assessments. The entire training lasted 18 months and I became a qualified user of CDF methodology for teaching and research purposes.

Cognitive interviewing explores participants' internal workplace in three steps, according to the Three Houses diagram. Each of the houses can be discussed in terms of all four quadrants of dialectics: process, context, relationships, and transformation. The interviewing consists of probing participants' understanding of transformation based on absences and gaps driving the transformation. "The interview functions as a translation device by which [the participant's] moves-in-thought are mapped into a linear sequence. The sequence reveals the oscillations of his consciousness articulated by speech" (Laske, 2009, p. 348).

Dialectical listening differs from deep listening as used in traditional phenomenological interviews because dialectical listening is focused on the underlying structure and not on the content of one's speech. Although a separation of content and structure is only conceptual, it is a necessary step, for research purposes, to access the deep structure of dialectical thinking. Only a

person with extensive training is able to develop sufficient proficiency to conduct this methodological process.

Interviewing procedure. Before the Professional Agenda Interview (also referred as the Three Houses interview), each participant received the Three Houses diagram (see Figure 3.2) and the consent form (see Appendix B). Each consent form was signed and returned to me prior to conducting the interview.

Interviews were conducted both in person and over the telephone. Seven face-to-face interviews were conducted in participants' offices, and the remaining three interviews were conducted over the telephone due to scheduling conflicts. Each interview was recorded and transcribed using a professional transcription service.

During the interview, the focus was on the sponsor's present task, position within the organization, and organizational environment. The content of the interview (what executives described as their present professional functioning as sponsors of change) served only as a catalyst to access the structure of thinking underlying the content, and that structure was the subject of the later analysis. I walked each participant through the Three Houses diagram and asked the following guiding questions:

1. For the task house domain: What is your present function and authority in the organization, and what roles and tasks follow from this?
2. For the organizational house domain: How would you describe the way in which your work is embedded in the larger organization?
3. For the self house domain: What would you say is your own professional agenda, and what motivates you to do this work?

Participants' answers to the three opening questions were probed further to elicit fluidity of participant thought and the coordinated use of thought forms. They were asked to elaborate upon their initial responses, to explain concepts and situations described, or to justify any stated values (Basseches, 1984). I also included one content-relevant question that was not part of Laske's original interview protocol: I inquired about their views and experiences as sponsors of change. All of them were in leadership positions (seven chief executive officers and three senior executives), so I asked them if there was a difference between their role as an organizational leader and as a sponsor of change. Their responses are included in chapter 4 in the introduction to each participant. Each executive participated in one cognitive interview and received one feedback session.

Scoring procedure. In addition to achieving competence in cognitive interviewing and dialectical listening, a qualified user of the CDF methodology must be equally proficient in the scoring procedure. The main challenge in scoring is the ability to separate content from structure. Laske (2008) explained:

> The crucial link between these tools is the user who not only administers the interviews and questionnaire, but is responsible for interpreting CDF findings expertly and ethically, according to standards of interrater reliability. The coach/consultant is using herself as the instrument of qualitative research. S(he) needs to master the art of separating interview content from structure (social-emotional stage and dialectical thought form, respectively). The extent to which a consultant is up to this task depends on her own developmental level which, far beyond mere skills, shapes her ability to act as an effective instrument of developmental research. (p. 9)

Scoring interviews involved several steps in scrutinizing narratives gauged through semi-structured interviews. As interviewer, I had to consider:

> The content of what is said as reflecting a particular constellation of thought forms whose surface expression the content is. It is the thought forms that are at the root of the content that is conveyed, since with a different set of thought forms "in mind," the content would be a different one from the one we receive. (Laske, 2009, p. 305)

Each transcript was coded for the use of dialectical thought forms (DTFs). Unlike a standard coding procedure for qualitative research, this methodology is unique in terms of using numbers instead of words. For practical reasons, the 28 thought forms are numbered for easier communication and interpretation (see Table 3.1). Also, numbers are used to score and interpret the dialectical structure of cognitive interviews, to assess the degree of elaboration in using dialectical thought forms, and to assess the overall balance and coordination of thought forms across the four quadrants of dialectics.

The scoring procedure involved several steps. I acted as the primary rater. I selected excerpts from each transcript called *bits* (Lahey et al., 1988; Laske, 2009), in which the presence of dialectical thought forms was evident, and transferred them to a scoring sheet (see Appendix G). My method of selecting bits for scoring differed from Laske's in two ways—how we decided on a number of scorable bits; and further, I added an additional step by estimating the weight of each individual bit. Laske (2009) suggested selecting a specific number of bits (15 to 18) from an interview that contains the highest quality of thought forms and then scoring them by determining the class (or quadrant) and determining the individual thought form by assigning a weight (degree of elaboration) of 1 to 3 points (1 = weak or inexplicit use; 2 = moderate or explicit use; and 3 = strong or emphatic and explicit use) to those bits. In some instances the assigned weight of 1, 2, or 3 points was divided into smaller fractions (as learned in advanced certification training) such as 0.25, 0.50, or 0.75 to note the presence of thought forms regardless of how weak they might appear. This delineation allowed for making finer distinctions in observing the structure of an individual's movements in thought.

I did not limit the number of bits; I felt it was important to capture all available bits in the interview where thought forms were present to obtain a richer and more accurate cognitive

profile for each participant. Consequently, each transcript consisted of different final numbers of bits and the total served as a key denominator for all subsequent scores for a particular individual. Therefore, all associated scores were relative to the total number of bits available for scoring in a particular interview.

In working with the second scorers, we initially experienced difficulties in reaching agreement over the composition of individual bits and their assigned weights due to a lack of clearly defined guidelines for assessing weights of individual TFs. For practical purposes, I introduced an additional step—I established the estimate of total weight for each bit and limited it to a maximum of 3 points. If a bit weighed over 3 points, it was split into two bits following the logical structure of the text.

The next step involved (a) identifying the class of thought form representing a quadrant of dialectics (process, context, relationship, or metasystemic), and (b) determining individual thought forms within each bit. After weighting each bit and determining the presence of individual thought forms, I identified the total weight distributed among all present individual thought forms within a bit. For example, if an estimated weight for a bit was 2.5 points and the bit contained 4 individual thought forms, the scored bit could look something like this: TF 4[1], TF 7[.5], TF 12[.75], TF 23[.25] = 2.5 total. It could also mean that if only one thought form was present, it would be scored as [2.5]. Assigning weights to thought forms is very important because a speaker can be more or less explicit and emphatic about the idea pointed to by a thought form. By associating thought forms with weights, the fluidity of dialectical thinking can be detected and, as Laske (2009) explained, "we give those who articulate thought forms explicitly credit for their deeper awareness of the essence expressed by a thought form" (p. 464).

The sequence of bits, thought forms, and weights was recorded in a cognitive behavior graph (Laske, 2009, p. 620). The sum of all thought forms at the bottom of the graph combined with the number of bits served as a foundation for further analysis.

With such a complex, multi-step scoring procedure, establishing inter-rater reliability became a very important issue. Therefore, a group of qualified scorers was engaged in an intense process of negotiation to reach consensus. All bits that exhibited partial disagreement on scoring were considered for inter-rater negotiation for reaching consensus. A detailed description of reaching inter-rater reliability and the procedure for resolving any difference is discussed in the section on inter-rater reliability. A summary of both initial and final inter-rater agreements for all interviews is presented later in Table 3.3.

Interpretation of the Scores

Cognitive interview scores empirically demonstrate how an individual constructs his or her inner workplace based on his or her moves in thought in and between the Three Houses. The scores indicate how many individual thought forms were used in each of the four classes of dialectics (process, context, relationship, and transformation).

The results of the analysis of 10 interview transcripts exhibited five interrelated indexes reflecting the respondents' present phase of dialectical thinking: Fluidity Index (F-score), Dialectical Strength (DS), Coordination Across Classes (formerly C-score), Systems Thinking Index (STI), and Discrepancy Score (D-score). The Fluidity Index (F-score) reflects Basseches'(1984) original scoring procedure and the Discrepancy Score (D-score) follows Laske's (2009) scoring procedure. Other scores were renamed and generated differently than the original scores devised by Basseches and Laske. For example, I created a Dialectical Strength (DS) Index as the extension of the Fluidity Index. Coordination Across Classes represents

Laske's Cognitive Score (C-score) with differently generated results, and the Systems Thinking Index (STI) reflects metasystemic thinking.

The results are reported and analyzed in chapter 4. Each profile includes a summary followed by a detailed analysis of each individual. Table 3.2 represents a sample of summarized cognitive profile for each of the 10 final participants. These composite profiles are preceded by detailed calculations of individual scores explained below.

Table 3.2

Sample of an Individual's Cognitive Profile

Fluidity Index:	45
Dialectical Strength:	62
Frequency of TFs by Quadrant:	14, 9, 21, 14
Coordination of TFs:	65, 62, 52, 67
Utilization of TFs:	25 (89.28%)
Discrepancy Index:	1.26

Overall Dialectical Strength (DS) (the extension of Laske's Fluidity Index). The Fluidity Index (F-score) is the most general—it indicates phase of cognitive development, marking flexibility of thinking in dialectical thought forms. The F-score is comprised of the sum of total number of thought forms and their weight used during the interview. In Laske's (2009) schema, subsequent scores are derived from the F-score. The F-score specifies a maximum limit of 84 (7 thought forms x 3 weights x 4 classes = 84). After several instances where my interviewees, following my scoring procedure, exhibited a Fluidity Index above 84, I modified my calculation by using the total number of bits and multiplying it by 3 (maximum attainable weight per bit) to establish a baseline for each interview. For example, if a particular interview generated 27 scorable bits, the strongest possible weight would be 81 points (27 x 3 = 81). Thus, for this interviewee, 81 points is the denominator used for calculating all subsequent scores.

Then, I calculated the ratio between maximum attainable score and actual score, multiplied by 100, and named the index the overall Dialectical Strength. For example, if the

total number of 25 bits was multiplied by the weight of 3, the maximum attainable score would be 75. If the actual attained Fluidity Index was 30, then the Dialectical Strength would be 40 (30 / 75 x 100). In other words, in this scenario the interviewee would be said to have attained 40 of the theoretically possible maximum score of 100 for that particular interview. These transformed scores (Dialectical Strength) do not have meaning in and of themselves; they only allow for comparisons both across the domains and across people, as illustrated in the "Common Themes and Patterns" section in chapter 4.

Several Dialectical Strength subscores (Coordination Across Classes, the Systems Thinking Index, and the Discrepancy Score) serve to further accentuate the uniqueness of each person's strength and illustrate the degree to which a person is flexible and nimble in moving from one quadrant to another or shows consistent strength across the quadrants. It is only when put together that the subscores give meaning to the overall Dialectical Strength of a person and illuminate the complexity of one's sense-making process.

Coordination Across Classes. Coordination Across Classes represents Laske's (2009) cognitive index (C-score), but it is calculated differently. This index is taken from the Dialectical Strength score and disaggregated into the four quadrants to specify cognitive balance among the four classes of thought forms representing process, context, relationship, and transformation. The original C-score devised by Laske (2009) is expressed in percentages derived in this manner:

> In the cognitive score, the percentages are derived in accordance with the fact that the maximal scoring weight of any thought form in each of the classes is 3 (1 = weak [inexplicit] use; 2 = moderate [explicit] use; and 3 = strong [emphatic and explicit] use). With seven thought forms to a class, the optimal weighting is thus 7 x 3 = 21 = 100%. (p. 351)

Contrary to Laske's (2009) calculation, I used the total number of bits multiplied by 3 and divided by 4 (classes), to obtain a baseline for optimal weighting. This change allowed for more accurate calculation of cognitive balance across all four classes of thought forms and a clearer graphic representation of each profile included in chapter 4. It also helped explain what made this particular score as high as it was and what prevented it from being even higher (used in interpretation of individual profiles in chapter 4).

The Systems Thinking Index (STI). The STI indicates the strength of transformational thinking. The score is derived from a total sum of metasystemic thought forms and their associated weight. A metasystemic class presupposes the notions of process, context, and relationship thoughts used in dialectical evolution, thus enabling a person to think transformationally. The STI score serves to illustrate a person's awareness of the complexity of a system and suggests one more indicator to help anticipate the person's ability to lead a system toward transformational change.

Discrepancy Index (D-score). Lastly, dialectical thinking establishes another kind of equilibrium between critical and constructive thinking. The D-score shows the balance of critical and constructive thinking of the interviewee. When introducing the four quadrants of dialectic thinking, Laske (2009) distinguished between the two upper quadrants (process and relationships) as critical quadrants, and the two lower quadrants (context and transformation) as constructive quadrants. He explained:

> People think critically when they inquire into processes and relationships between things, while when focusing on contexts, they construct configurations and scenarios, thinking constructively. Both kinds of thinking are needed to conceive of reality in terms of transformational systems. (Laske, 2009, p. 228)

None of the four interrelated indexes alone can fully and accurately portray an individual's thinking. However, when combined together, they reveal a rich and complex portrait of

patterned movement in thought for each interviewee. The DS score indicates the strength of dialectical thinking or the number of used thought forms, the C-score shows how coordinated one's thinking across four quadrants of dialectics is, the STI reveals the level of metasystemic thinking leading to transformational thinking, and the D-score indicates the balance between critical and constructive thinking. All scores, combined together, are needed to provide a good estimation of a person's phase of dialectical thinking, something that no one score alone can do.

Figure 3.2 is a sample of a graphic representation of an individual's mental space as determined by the multiple detailed calculations described above. The map clearly indicates the person's cognitive strength and the degree of coordination across four quadrants of dialectics. It also points out areas suitable for future development. In chapter 4, each individual's profile is concluded with such a map.

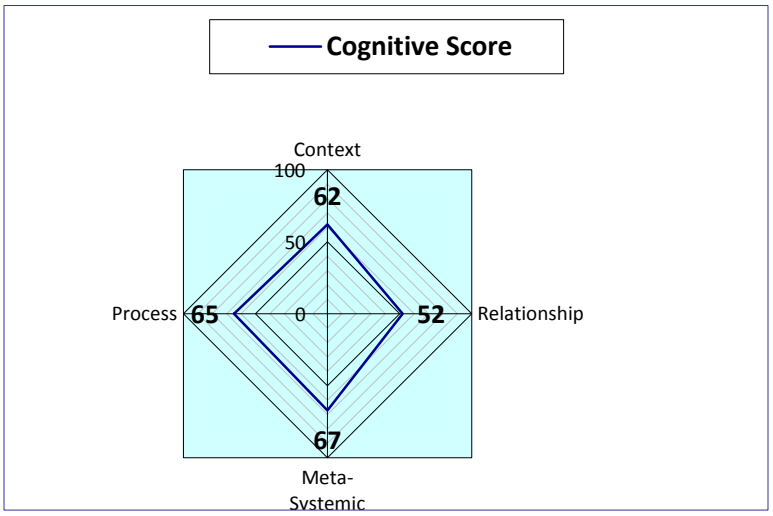


Figure 3.2. Sample map of individual's mental space.

Criteria for Evaluation

I followed two sets of qualitative research criteria used in modern social science, particularly in constructivism, to discuss the issues of truth value in my findings. I first addressed the epistemic criteria concerned with justifying knowledge claims as true (Kenny,

2006) such as construct validity and inter-rater reliability, followed by the trustworthiness criteria of credibility, transferability, dependability, and confirmability, as conceptualized by Lincoln and Guba (1985). I also addressed the ethical and moral considerations of the inquiry process.

Construct validity. In modern social science, the term *validity* refers to whether a method investigates what it intends to investigate (Zikmund, 2000). The term *construct validity* (Cronbach, 1971) pertains to social construction of valid knowledge, or precisely to the measurement of theoretical constructs, "such as intelligence and authoritarianism, by different measures; it involves correlations with other measures of the construct and logical analysis of their relationships" (Kvale, 2002, p. 22).

Laske's Cognitive Development (CD) assessment, a part of the CDF assessment, measures conceptual complexity through the use of dialectical thought forms and their degree of coordination, and not verbal fluency. For example, a person may demonstrate a high degree of verbosity in an interview and not generate a single thought form, especially when focused solely on content. The focus of scoring is not richness of vocabulary, but richness of dialectical movement of thought from one concept to another within a well-bounded topic co-generated by interviewee and interviewer. The movements-in-thought that appeared during the interview were isolated, selected for scoring, and assigned a numerical value as indicated in the *Dialectical Thought Form Manual* (Laske, 2009). The higher score indicated more elaborate use of thought forms, and thus demonstrated stronger ability for conceptual and complex thinking, as evidenced in Basseches' (1984) original research. Advanced training in administering the CDF assessment was a necessary precondition for quality and consistency of administering the assessment. Unlike research methods in which interviews are used for content analysis, in Laske's (2009)

methodology, "the interview functions as a translation device by which moves-in-thought are mapped into a linear sequence. The sequence reveals the oscillations of his consciousness articulated by speech" (p. 348).

Inter-rater reliability. Given the nature of a multi-step scoring procedure and the challenge of evaluating dialectical thinking where such a task requires a scorer to think dialectically and to be extensively trained (Laske, 2009), the task of reaching inter-rater reliability was extremely important.

> Interrater reliability is the most common index of rater consistency. . . . Interrater agreement, the proportion of instances in which two raters assign the same score to a given protocol, is a more conservative index of consistency across raters because it reflects actual agreement, not simple consistency. (King & Kitchener, 1994, p. 110)

This challenge was further exacerbated by the lack of an established protocol for inter-rater reliability for the Cognitive Development (CD) assessment. To ensure a reliable agreement (75% or more), I developed a multi-step protocol for scoring cognitive interviews and engaged several qualified raters in a long and labor-intensive collaborative process to reach consistency in scoring.

Initial cognitive scores were based on my subjective judgment as a trained rater. In using the dialectical thought form (DTF) method, a researcher's own level of cognitive development may impact the selection of relevant sections for coding. For example, a coder who is operating at a lower developmental stage may miss complex sense-making patterns, so the consistency of scores was a primary concern. To ensure a high quality of coding, I engaged a group of second scorers—for the first three interviews the scorer was Otto Laske, the author of the *DTF Manual* (2009), and for the remaining seven interviews the scorers were five peers, all trained and certified in using CDF methodology. Initially, it was expected that satisfactory inter-rater consistency would be reached if there was a 75% level of agreement between the two scorers.

Obtaining a single rate of agreement proved to not be possible due to the multilayered scoring procedure. Each scored bit needed to be analyzed separately according to the three different segments of the score: weight, quadrant, and individual TF. The first step required agreement on the weight of each bit. In the second step, we sought agreement on the class of TFs represented within a bit. The third step involved agreement on the individual TFs within a quadrant. While reaching agreement over weight and quadrant was important, and thus carefully recorded, the third step (congruence of individual TFs within a quadrant) was a matter of interpretation and as it proved nearly impossible to reach full agreement on this step, it was not included in calculating the overall inter-rater agreement.

Consequently, inter-rater reliability was calculated in two phases and several steps. First, I recorded the initial agreements or disagreements between my scores and a second scorer's suggestions prior to engaging in mutual negotiations and counterproposals. In the second step, I reported the final agreement after negotiating all points of disagreement between a second rater and myself. I separated the degree of congruence for quadrants and for weight and expressed the agreement as two separate numbers, one as a percent of congruence for quadrants and another as a percent of agreement for the weight of bits. For example, if there was congruence on quadrants, I would score 1 point, and if the assigned total weight was within 1 point, I would score another 1 point. If there was partial agreement on quadrant, I would assign 0.5 point. Based on the input from a second scorer, I adjusted my initial scores and used them as final scores for giving feedback to the study participants. The summary of initial and final inter-rater agreement for each scored interview is reported in Table 3.3 and a more detailed calculation of inter-rater reliability for all interviews is included in Appendix H.

Table 3.3

Inter-rater Reliability

		Initial Agreement		Final Agreement		Change	
Participant	Bits	Quadrant Congruence	Weight Agreement	Quadrant Congruence	Weight Agreement	Q	W
Robert	27	61%	87%	89%	100%	+27%	+13%
James	35	(2nd) 53%; (3rd) 41%	(2nd) 87%; (3rd) 87%	(2nd) 87%; (3rd) 81%	(2nd) 94%; (3rd) 97%	+34% +40%	+7% +10%
Richard	33	65%	85%	88%	100%	+23%	+12%
Andrew	28	68%	93%	80%	95%	+12%	+2%
Michelle	29	78%	98%	84%	100%	+6%	+2%
Ted	29	(2nd) 66%; (3rd) 81%	(2nd) 66%; (3rd) 97%	(2nd) 72%; (3rd) 86%	(2nd) 74%; (3rd) 97%	+6% +5%	+8% 0
Alice	28	89%	93%	89%	91%	0	-2%
Jack	25	82%	94%	94%	96%	+12%	+2%
Michael	25	74%	88%	84%	96%	+10%	+8%
Cynthia	26	96%	100%	98%	100%	+2%	0

It is important to note the significance of engaging second and third scorers. Working on the first three interviews proved to be more challenging than expected. The initial agreement between Otto Laske's and my scoring was below 75% and I needed to reconsider my scores based on his counterproposals. I invited a third scorer to participate in rescoring the second interview, and adjusted my scores based on his and Laske's suggestions. These two steps

substantially increased the percentage of agreement and helped me develop the confidence necessary for proceeding with scoring. The remaining seven interviews were second-scored by my peers. Upon completing the scoring procedure, we engaged in a lengthy and lively discussion over initial disagreements and made a great effort to negotiate mutually acceptable scores. In most cases, we were able to convince each other of a position and come up with mutually agreed scores. In some instances, I rejected the counterproposal and kept my original score. In one instance, the interrater agreement was too low (below 70%) and a third scorer was invited to resolve the disagreements. Upon his review, we reached 86% agreement. The last two columns in Table 3.3 show the final interrater agreements after all negotiated and accepted scores were taken into consideration for each interview.

Trustworthiness. Because the current study is qualitative with quantitative outcomes, I followed the trustworthiness criteria for qualitative research. Trustworthiness is the quality of an investigation (and its findings) that makes it noteworthy to audiences (Lincoln & Guba, 1985). The constructs of credibility, transferability, dependability, and confirmability combine to establish criteria for evaluation in qualitative methods of study.

The concept of *credibility* (paralleling the concept of internal validity from a traditionally quantitative paradigm) addresses the issue of the inquirer providing assurances of the fit between respondents' views of their lives and the inquirer's reconstruction and representation of the same (Lincoln & Guba, 1985). In the current study, my professional experience as a change management consultant, my resultant understanding of the world of sponsors, and my certificate in cognitive assessment combined to ensure accurate reconstruction and representation of participants' narratives.

Transferability (paralleling the concept of external validity in the traditionally quantitative perspective) deals with the issue of generalization in terms of case-to-case transfer (Lincoln & Guba, 1985). For this study, the selection of participants within the same professional category and in a specific role contributed to transferability and potential generalization.

Dependability (paralleling the concept of reliability in a standard quantitative approach) focuses on the process of the inquiry and the inquirer's responsibility for ensuring that rigorous methodological tools have been applied in the research study (Lincoln & Guba, 1985). The current study relied on the *Manual of Dialectical Thought Forms* (Laske, 2009), which has been shown to be a rigorous methodological tool when combined with thorough training.

Confirmability (paralleling the concept of objectivity in a traditionally quantitative view) is concerned with establishing the fact that the data and interpretations of an inquiry are not merely figments of the inquirer's imagination (Lincoln & Guba, 1985). In this study, confirmability was established by offering participants the opportunity to review and comment on a portion of my interpretations of scoring results. Each participant reviewed and approved the transcript and participated in a feedback session where the scoring results were presented and interpreted.

Ethical considerations. All participants in this study were guaranteed confidentiality—no individual data were shared with other participants or their organizations. All identifying marks such as participant names and organizations were removed from the data-reporting documents. Participants had the opportunity to withdraw from the study at any time.

Although I recognized the role of organizational context in this study of sponsorship, this study was a first-person subjective account of personal views and experiences within the role of

a sponsor. There was no empirical measure of individual effectiveness and performance in the role to corroborate the individuals' accounts.

The findings of this research were shared with study participants in the form of an individual cognitive profile. All participants agreed to participate in a one-on-one structured feedback session discussing individual study results and provided feedback on their experience as study participants.

The inquiry process in qualitative research and the right conduct of the researcher (Kenny, 2006) were addressed in this chapter by the description of methodology, research procedures, and by attending to ethical considerations in this study. The next chapter discusses results of the current research study.

Chapter IV: Findings

The purpose of this multiple case study was to expand our understanding of the structure of thinking employed by executive sponsors as initiators/enablers of complex, large-scale organizational change. Specifically, I intended to explore the existence of dialectical thinking among the 10 study participants—individuals who had successfully transformed their respective organizations—with the intention to:

- Understand how individuals who are sponsors of large-scale change make sense of their roles and experiences.
- Find evidence of dialectical thinking among the 10 study participants by measuring their use of dialectical thought forms.
- Learn the extent to which individuals in a sponsorship role use dialectical thinking in their work.
- Identify patterns of thinking that may emerge across the 10 study participants that may lead to better understanding of what might differentiate effective sponsors from others.
- Test the usefulness of the DTF framework for future studies and discover whether this highly complex analysis of interview data leads to increased understanding of the way sponsors think about transformational, large-scale change.
- Explore the potential use of the DTF framework as a tool for leadership coaching and development.

In this multiple case study, I explored the following questions:

- To what degree do the sponsors of organizational change engage in dialectical thinking in their work?

- Is complexity of thinking related to complexity of sponsorship roles? If so, how?
- What phase of cognitive development must sponsors of transformational change attain to become effective change agents?
- Does a higher level of dialectical thinking lead to more effective sponsorship of transformational, complex change?

As described in chapter 3, I used a cognitive development assessment protocol to gather individuals' narratives that I then used to score and create individual cognitive profiles of the 10 participants.

This chapter includes the following sections:

1. Participants' demographics and a brief description of each participant's work.
2. Analysis of each participant's individual cognitive profile, including these components: the pattern of the individual's thinking as evidenced in completed cognitive-behavior graphs (Laske, 2009) and major strengths, weaknesses, and unique cognitive configurations evidenced by documented frequencies of occurrence and weights of individual TFs. In addition, each profile includes the total number of TFs used during the interview and graphical representation of the proportion of uses of individual TFs from the four classes of process, context, relationship, and meta-systems. Finally, each individual profile contains an estimate of the phase of the individual's dialectical thinking and a brief observation of the individual's potential for further cognitive growth.
3. Discussion of emerging common themes and patterns, and implications for the field of practice.
4. Summary.

Participants' Demographics

Ten participants nominated by expert consultants familiar with their performance participated in this study. They all met the initial selection criteria: they were in a senior leadership position (seven CEOs and three senior executives) in the profit or not-for-profit sector and had successfully sponsored a transformational change in their respective organizations. Their success was marked by the full realization of their original intent as promised at the onset of a change initiative, not by the installation of a specific project (Conner, 1998). All participants signed the informed consent form (see Appendix B). Upon completion of the individual profile, each participant received his or her profile and participated in a 1-hour feedback session in which he or she learned about his or her individual profile, was able to ask questions for clarification, and provided me with feedback. The feedback is discussed in more detail in the section addressing face validity below. Table 4.1 contains a demographic summary of the participants.

Table 4.1

Participants' Demographics

Participant Alias	Age	Current or Last Position	Industry
Robert	67	CEO	Health care
James	48	CEO	Global not-for-profit; community development
Richard	65	President and CEO	Not-for-profit; arts
Andrew	66	CEO	Health care
Michelle	37	Head of business process excellence	Global pharmaceutical
Ted	49	Global head of biologic	Global pharmaceutical
Alice	55	President and CEO	Not-for-profit; community development
Jack	45	Sr. VP, Emerging markets and external manufacturing	Global pharmaceutical
Michael	50	COO	Global pharmaceutical
Cynthia	52	CEO	Government agency

Analyses of Individual Cognitive Profiles

Robert. Robert (age 67), a veteran in the healthcare industry, was at the time of our interview the chief executive officer of a regional hospital system comprising five local healthcare organizations in a small Midwestern town. Robert recently completed a successful merger and integration of this regional hospital system with a major national healthcare provider. According to Robert, the initial idea for this organizational transformation was born several years earlier when his board tried to determine where they wanted to be in the year 2020. The board explored environmental and technological changes and brought in outside expertise to help craft a vision of what the future should look like. They recognized that with their size, capitalization, and total budget, as Robert described it, "[our] footprint was smaller than our presence and smaller than our vision." Robert realized it was going to take them a long time to save or earn enough money to get them where they wanted to go. An opportunity presented itself several years later when the hospital system was approached by a major national healthcare provider, awakening their aspiration for expansion and a more secure future. Robert initiated and led a merger that lasted about two years and was recently completed.

In his role as an initiating sponsor of this merger, Robert has been widely recognized and often celebrated among residents and the local media for his thoughtful leadership and contribution to the wider community. He was recommended as a study participant by numerous residents and, although I did not have any hard data to support claims of his effectiveness as an initiating sponsor of change, it was obvious upon visiting the area and speaking with several people that Robert enjoyed widespread community support and admiration for his leadership. For example, the chairman of the governing council of a new, integrated organization praised Robert for his evenhanded and thoughtful personality, and credited his decisiveness for his

effectiveness during the merger. Everyone I spoke with assured me of the success of the merger and the bright future for the hospital and its numerous stakeholders.

At the time of our interview, Robert had announced his retirement after 43 years of service and 8 years as CEO, but had made a commitment to remain on board until the merger was completed. During our conversation, I inquired about his view of his role as a sponsor, as well as CEO. He explained:

> To be a CEO without being a sponsor . . . I could have been a reluctant sponsor, I suppose. I could have stopped it at any one point in time. . . . And because the governing body looks to me as the expert . . . you're looking at dozens of people's projections of what's going to happen 10 years from now. There are also the concerns: "Will I lose my management team? Will they not like it and they leave?" Or, "Maybe they won't be able to translate their success in [the big city] in something downstate? The culture is different, they may not understand, they don't realize the distances, not all their systems are going to work as they think they will." And some of these things are true. So it takes more than just a decision type of CEO. I guess it's going in and wanting to have it happen, believing it's the right thing.

During the interview, the ease with which Robert used complex concepts assured me that he was a skilled dialectical thinker. However, only after scoring and analyzing data was I able to grasp the structure of his thinking and understand the extent to which his thinking might have contributed to his effectiveness as a change sponsor.

Table 4.2 represents the summary of Robert's cognitive profile. More detailed scores are explained in subsequent tables.

Table 4.2

Summary of Robert's Composite Cognitive Profile

Fluidity Index:	46.25
Dialectical Strength:	57.09
Frequency of TFs by Quadrant:	13, 11, 17, 19
Coordination of TFs:	42, 41, 65, 80
Utilization of TFs:	25 (89.28%)
Discrepancy Index:	.89

Table 4.3 represents Robert's cognitive-behavior graph (adapted from Laske, 2009, p. 620), which tracks his moves in thought during the interview. This graph shows Robert's use of TFs with their assigned weight (clarity of expression or degree of elaboration) mapped into linear sequence as the TFs appeared in the interview. The sequence reveals the "oscillations of his consciousness articulated by speech" (Laske, 2009, p. 348).

Table 4.3

Robert's Cognitive-Behavior Graph

Bit #	Process	Context	Relationship	Metasystems
		<u>Task House</u>		
1		8 [.5]	16 [.5]	
2	1 [.25] 4 [.5]		20 [1]	
3		9 [1]	19 [1]	
4			20 [1]	
5	4 [.5]		16 [1] 20 [.25]	
6			20 [1]	27 [1]
7	4 [1]	9 [1]	18 [1]	
8		9 [.75]	21 [.25]	
9			18 [1]	
10				22 [.5]
11	4 [.75]	10 [.5]		
12			21 [2]	
13	4 [1] 5 [.5]	8 [.5]		
14				22 [1]
15			16 [.25] 17 [.25]	22 [1.5]
16			16 [.5] 18 [.75]	24 [.25]
17		9 [.5]		25 [1] 26 [.5]
		<u>Organizational House</u>		
18		9 [1]		26 [1]

19		10 [1]	19 [1]	
20	3 [.5] 7 [.5]			26 [1]
21				22 [.5] 23 [1]
22				23 [.5] 25 [.5] 26 [.5]
23				25 [1]
		Self House		
24		9 [.5] 14 [.5]		24 [1]
25	2 [.5] 5 [1]			26 [.5]
26	6 [.5] 7 [1]	13 [.5]	18 [.5]	
27				25 [1] 28 [2]
	TOTAL: 8.5	TOTAL: 8.25	TOTAL: 13.25	TOTAL: 16.25

The total number of selected bits serves as the basis for analysis of an individual interview. The total sum of all TFs used and their weight is indicated at the bottom of the table for each quadrant of dialectics (process, context, relationship, and meta-systems). The numbers in this table serve as a basis for all subsequent calculations and reporting for Robert.

Robert's cognitive behavior graph (CBG) indicates that 27 bits contained dialectical thought forms and were used for scoring. In this configuration, the maximum attainable score for this interview is 81 (27 bits x max weight of 3 points per bit).

The scores from the cognitive behavior graph are further delineated in Tables 4.4 and 4.5 below. Table 4.4 contains frequencies of use for each individual thought form and their average assigned weight. It also reveals thought forms that did not appear in the interview. Table 4.4 reveals with greater precision the thought forms that dominated Robert's thinking (frequency),

the thought forms that were expressed with more clarity and precision than the rest of the thought forms, and the thought forms that did not appear in the interview.

Table 4.4

Frequencies and Average Weight of Individual Thought Forms: Robert

01 Robert

Process	Frequency	Average Weight	Context	Frequency	Average Weight
1. Unceasing change	1	0.25	8. Parts within a whole	2	0.50
2. Preservative negation	1	0.50	9. Equilibrium of a whole	5	0.85
3. Interchange of opposites	1	0.50	10. Structures, functions, layers of the system	2	0.75
4. Patterns of interaction	5	0.75	11. Hierarchical nature of systems	0	0.00
5. Practical character of knowledge	2	0.75	12. Stability of system functioning	0	0.00
6. Critique of denying change	1	0.50	13. Frames of reference, traditions, ideologies	1	0.50
7. Embedding in process, movement	2	0.75	14. Multiplicity of contexts	1	0.50
Relationship	**Frequency**	**Average Weight**	**Metasystemic**	**Frequency**	**Average Weight**
15. Existence and value of relationship	0	0.00	22. Limits of stability, harmony, and durability	4	0.88
16. Value of bringing into relationship	4	0.56	23. Value of conflict leading to development	2	0.75
17. Critique of absence of holistic thinking	1	0.25	24. Value of developmental potential	2	0.63
18. Relate different values and judgments	4	0.81	25. Evaluative comparison of systems	4	0.88
19. Structural aspects of relationship	2	1.00	26. Process of coordinating systems	5	0.70
20. Patterns of interaction	4	0.81	27. Open, self-transforming systems	1	1.00
21. Constitutive, intrinsic relationships	2	1.13	28. Integration of multiple perspectives	1	2.00

Table 4.5 focuses on the total number of thought forms that appeared in the interview without their assigned weight. The numbers in the table partially indicate the degree to which a participant is capable of thinking dialectically. As mentioned earlier, to reach phase 4 of dialectical thinking (fully developed), a large number of thought forms and their full coordination is required. Table 4.5 indicates only a number of thought forms and their coordination is reported in individual cognitive profiles as Coordination Across Classes scores (see Table 4.6).

Table 4.5

Unweighted Utilization of Thought Forms: Robert

	Process	Context	Relationship	Metasystemic
Unweighted utilization of DTFs per class	7/7	5/7	6/7	7/7
Total unweighted utilization of DTFs		25/28 x 100 = 89.28%		

Robert's cognitive score indicates his ability for transformational thinking as evidenced in the use of all seven metasystemic thought forms (TFs). He is aware of systemic and holistic characteristics of the world around him, primarily based on his deep understanding of relationships and his remarkable ability to think in terms of processes and contexts.

The high concentration of relationship TFs in the task house indicates Robert's awareness and the importance of his own presence in various relationships within a system. The high concentration of metasystemic TFs in the organizational house indicates his deep understanding of the development and transformation of a system in which he is embedded.

In terms of context, Robert is strongly aware of a "whole" and a "big picture," as evidenced in the strong use of TF 9 (understanding the organized whole). However, there is insufficient emphasis on a more nuanced view of the whole, such as pointing to parts within the

whole, its hierarchical nature, or elements that contribute to the stability of a system or understanding the whole from different frames of reference, as evidenced in the absence of TFs 11 and 12.

Several TFs dominate Robert's thinking, TFs: 9 (balance of a whole), 18 (relatedness of different value systems), 4 (patterns of interaction in processes), and 22 (limits of stability of a system). The frequency and weight of those TFs suggest that his thinking is aligned with what is expected of a skilled leader of organizational change.

Table 4.6

Robert's Cognitive Profile

Overall Dialectical Strength (DS)	DS = (8.50 + 8.25 + 13.25 + 16.25) = 46.25 / 81 x 100 = 57.09
Coordination Across Classes	P = 8.5 / 20.25 x 100 = 42; C = 8.25 / 20.25 x 100 = 41; R = 13.25 / 20.25 x 100 = 65; MS = 16.25 / 20.25 x 100 = 80
Systems Thinking Index	80
Discrepancy Index	(8.5 + 13.25) / (8.25 + 16.25) = (21.75 / 24.5) = .89

Table 4.6 represents a synthesis of all scores. Overall Dialectical Strength (DS) is comprised of the original Fluidity score as defined in the Manual (Laske, 2009), but I added one more step to indicate a total score relative to this particular interview that generated 81 bits available for scoring. Coordination Across Classes represents the degree of coordination of TFs across the four classes of dialectics and it is graphically shown in Figure 4.1. The Systems Thinking Index represents the overall strength of transformational thinking and is derived from calculating the thought forms used in the metasystemic quadrant. The Discrepancy Index shows the balance between critical and constructive thinking. A final score greater than 1 indicates a stronger propensity for critical thinking and a score less than 1 indicates a stronger propensity for constructive thinking.

Figure 4.1 shows Robert's mental space. The blue lines represent his current degree of dialectical thinking as evident in the number of TFs and their coordination across four classes. The outer boundaries of the quadrant represent the total available domain for the expansion of Robert's current thinking.

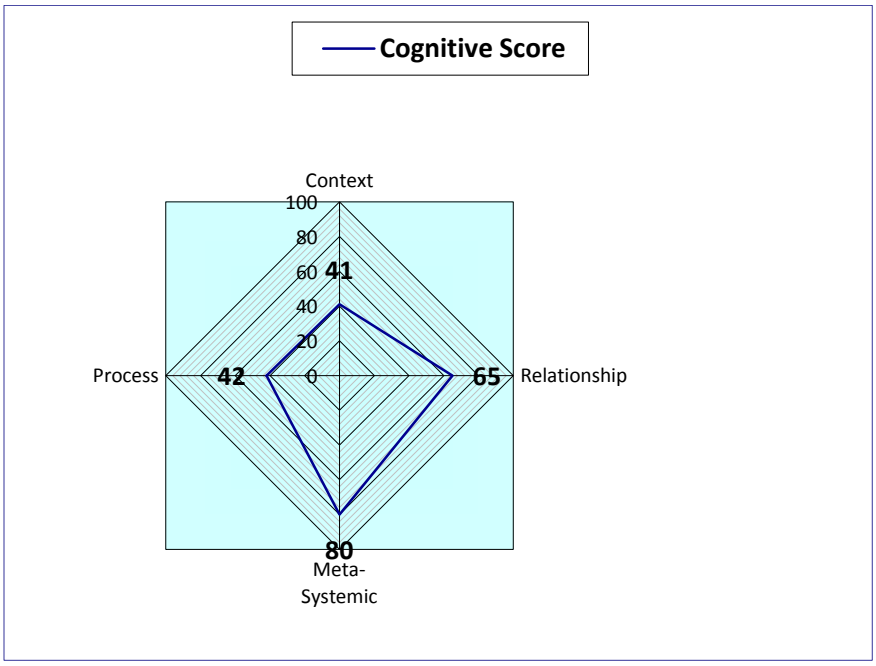


Figure 4.1. Map of Robert's cognitive profile.

As described in chapter 2, Basseches (1984) distinguished four different phases of dialectical thinking and dialectical thinking is exercised to a different extent and has different meaning in each phase (Laske, 2009). Robert's profile indicates his transition between phase 3 and phase 4. According to Basseches, phase 3 is defined as a turning point of cognitive development where more TFs and their coordination are observed than in phase 2 (characterized as fewer TFs and little coordination), and in phase 3 a person is dealing with values and not only facts. In phase 4, a person is capable of using a large number of thought forms in their full coordination, and is thus capable of transformational thinking (Laske, 2009).

Robert's profile indicates he is well established in phase 3 and well positioned to move beyond phase 3. He uses a large number of thought forms (25 out of 28) in full coordination; however, the lower weight in process and context suggests he may not yet have reached phase 4. The presence of six process TFs and four context TFs points to his potential to, with some practice, move to phase 4.

Overall, Robert's cognitive profile reveals his key strength in his ability to use a broad repertoire of metasystemic TFs and his strong ability to find common ground among various elements of the system, seeing it as an organized whole. His discrepancy score shows a slightly stronger preference for constructive thinking over critical thinking. His weaker use of context and process TFs relative to relationship and metasystemic TFs prevents him from being considered a fully developed dialectical thinker with full coordination of TFs, as required in phase 4. However, this can be easily remedied through some structured guidance and reflective practice.

James. James (age 48) is the chief executive officer of a complex, faith-based global non-government organization headquartered in the United States. Its organizational structure is comprised of over 1,600 affiliates within the U.S. and its operations are spread over 90 foreign countries, with an annual operating budget of approximately $1.5 billion.

James assumed his current role about five years ago, following a sequence of successful corporate positions. He calls himself "an accidental business person" because of his family of origin's interests in politics and expectations for him to attend law school. Lack of interest in becoming a lawyer led him to a Wall Street job and a series of executive jobs across several industries. His business experience combined with several service trips to India and Africa and working with the poor helped prepare him for a CEO position with a not-for-profit organization.

James found his true calling in his current position, which allows him to achieve a sense of full integration by merging vocation with avocation. He describes his current job as "the first time in my life where I have a job where there's nothing else I want to go do." Even though he considers himself to be a change seeker, his current job provides so much variety and change that he knows he will never get bored.

His major change initiative was rebranding and restructuring the entire organization to accommodate its rapid growth. The organization had expanded globally and tripled in size over the past 5 years, requiring major intervention in building systems and infrastructures to enable sustainable growth. The process of transformation began with rolling out a new brand, new logo, and new standards of excellence, followed by initiatives to unleash innovation. James credits the success of this transformation to the organization's ability to preserve its core values while allowing flexibility to adapt to local circumstances. He explained:

> I think, trying to hold onto the core of what has made our organization so transformational and successful, and figure out what are those non-negotiables that we can't lose through this process and yet still give enough freedom for the contextualization of the model in all its different places, and give the local leadership enough freedom to be able to figure out how we can most impact poverty conditions in X country. Because the government structures, the housing funding structures, the financing structures, change so much from country to country.

The organization has been successfully transformed. Yet, James spoke with profound humility and dedication of "still having a lot of work do because change and innovation is a never-ending process."

James sees his role of an initiating sponsor of all major initiatives as being determined by his position of formal authority within the organization. He said:

> The handful of really big initiatives we agreed on, even though I may not be the implementing sponsor, I needed to be the initiating sponsor for basically all of them because, by definition, to be a major initiative, it meant it was highly cross-functional, highly complex, and had some levels of scale of impact. And if those were true, then no

> one function or geography could fully own the initiative. So in that sense, they go together. I think when we go to implementation, in many cases one of the senior leaders on our team is really owning the day-to-day implementation. But I feel like I've got to still play the critical role of essentially breaking resource log jams, being an advocate, and sort of creating air cover for the initiative.

In his final remarks, James reflected on valuable learning points that have emerged from his sponsorship experience:

> When you're moving fast and you're doing too many things, you install the change but don't realize all the outcomes. And really defining those long-term outcomes and holding on while the next set of crises and disasters and urgent things shows up, but not losing that, tracking the outcomes so that we really do own the change. I think now I'd coach businesspeople, actually, to manage much more the way I think you need to in the nonprofit arena.
>
> Actually, I think the same management style works all the way across, I just think it's mandatory in the sort of more pure sense of mission and the more sacrificial. The more you have volunteers or the more sacrifices you're asking people to make to be a part of the organization, the greater the sense of ownership and autonomy and recognition they need because you don't have stock options and bonuses and some of the levers that I don't think are primary drivers, but they're helpful levers when you're trying to drive change.

Table 4.7 represents the summary of James' cognitive profile. More detailed scores are explained in subsequent tables.

Table 4.7

Summary of James' Composite Cognitive Profile

Fluidity Index:	50.25
Dialectical Strength:	47.85
Frequency of TFs by Quadrant:	18, 15, 26, 16
Coordination of TFs:	43, 42, 63, 44
Utilization of TFs:	27 (96.42%)
Discrepancy Index:	1.23

Table 4.8

James' Cognitive-Behavior Graph

Bit #	Process	Context	Relationship	Matasystems
		Task House		
1		10 [1]	19 [.5] 20 [.5]	
2			21 [.5]	26 [.5]
3		13 [.5]	20[.75]	
4			20 [1]	
5			21 [.5]	
6				22 [1]
7	1 [.75]			
8	7 [1]			
9	2[.5]	9 [.5]		24 [.5] 25 [.5]
10		14[1]	16 [.5] 17 [.5]	
11	3 [.25]			23 [.75]
12	4 [1]			
13	2[.5]		17 [.25]	23 [1]
14				26 [1.5]
15		9 [1]		
16			16 [.75] 21 [.5]	
		Organizational House		
17			15 [.5] 19 [.5]	
18		14[1]		23 [.5]
19	2 [.5]		21 [.5]	
20	4 [.5]	12 [.5]	20 [.5]	
21		8 [.75]		22 [.75]
22			17 [.75] 18 [.75]	
23	5 [.5]	12 [.5]	18 [1.5]	
24				22 [.5] 23 [1] 28 [1]
25			16 [1] 18 [1]	

26		14 [.75]	15 [.5] 16 [.5]	
27		14 [1]		
28	5 [.5]	8 [.5] 14 [1]		
		Self House		
29	5 [.5] 7 [.5]	13 [.5]	17 [.5]	
30	7 [1]			23 [.5] 24 [.5]
31	5 [.5]	11 [.5]		22 [.5]
32	6 [.5]			25 [.5]
33	3 [1]			
34	5 [.25]		18 [.25]	
35	1 [1]		19 [.5] 20 [.5]	
	TOTAL: 11.25	TOTAL: 11	TOTAL: 16.50	TOTAL: 11.50

James' cognitive behavior graph indicates that 35 bits contained dialectical thought forms and were used for scoring. In this configuration, the maximum attainable score for this interview was 105 (35 bits x max weight of 3 points per bit).

Table 4.9

Frequencies and Average Weight of Individual Thought Forms: James

02 James					
Process	Frequency	Average Weight	Context	Frequency	Average Weight
1. Unceasing change	2	0.87	8. Parts within a whole	2	0.63
2. Preservative negation	3	0.50	9. Equilibrium of a whole	2	0.75
3. Interchange of opposites	2	0.63	10. Structures, functions, layers of the system	1	1.00
4. Patterns of interaction	2	0.75	11. Hierarchical nature of systems	1	0.50
5. Practical character of	5	0.45	12. Stability of	2	0.50

knowledge			system functioning		
6. Critique of denying change	1	0.50	13. Frames of reference, traditions, ideologies	2	0.50
7. Embedding in process, movement	3	0.83	14. Multiplicity of contexts	5	0.95
Relationship	Frequency	Average Weight	Metasystemic	Frequency	Average Weight
15. Existence and value of relationship	2	0.50	22. Limits of stability, harmony, and durability	4	0.68
16. Value of bringing into relationship	4	0.69	23. Value of conflict leading to development	5	0.75
17. Critique of absence of holistic thinking	4	0.50	24. Value of developmental potential	2	0.50
18. Relate different values and judgments	4	0.87	25. Evaluative comparison of systems	2	0.50
19. Structural aspects of relationship	3	0.50	26. Process of coordinating systems	2	1.00
20. Patterns of interaction	5	0.65	27. Open, self-transforming systems	0	0.00
21. Constitutive, intrinsic relationships	4	0.50	28. Integration of multiple perspectives	1	1.00

James is a balanced thinker with good coordination of thought forms across all four classes. However, he is most fluent in his thinking when dealing with relationships among people, situations, and systems.

James' cognitive profile signifies his strong ability to recognize a common ground in seemingly conflicting situations and points of view, as evidenced in frequency and weight of using TF 18 (relatedness of different value and judgment systems) as well as in using the total number of TFs in the relationship class. James is highly aware of cultural, religious, political, and historical contexts and value judgments and is able to find commonalities among them. Being a mainly relational thinker contributes to his transformational profile even though more weight is given to relationships than to considering processes and context.

A higher frequency of use of several TFs points to James' frames of reference when thinking about leading change and his own embeddedness in the process. His emphasis on implementation signifies his awareness of the practical value of knowledge (TF 5); he is also aware of the nature of constitutive relationships (TF 21) and the complexity of his environment, and critiques the absence of common ground (TF 17). James' systemic viewpoint is evident in his frequent use of TF 22, recognizing the fragility of a system and limits to its stability.

Table 4.10

Unweighted Utilization of Thought Forms: James

	Process	Context	Relationship	Metasystems
Unweighted utilization of DTFs per class	7/7	7/7	7/7	6/7
Total unweighted utilization of DTFs		27/28 x 100 = 96.42%		

The rate of utilization of individual thought forms (96.42%) indicates James' strong potential for becoming a fully developed dialectical thinker. He uses 27 thought forms in their full coordination; thus, he could be considered to be in phase 3, according to Basseches (1984). A large number of thought forms were weighted at 0.5, indicating James used them often, but lightly. He was able to touch upon a variety of thought forms, but did not elaborate further. What is currently preventing him from reaching phase 4 is learning how to increase the depth and clarity of expression across all four classes. Doing so would increase the overall weight and result in higher scores. The relatively high number of scored bits attested to the mere presence of thought forms, and consequently lowered James' overall scored profile due to low weights. I believe increasing the weight of existing thought forms would help James reach phase 4 very quickly.

Table 4.11

James' Cognitive Profile

Overall Dialectical Strength (DS)	DS = (11.25 + 11+ 16.50 + 11.50) = 50.25 / 105 x 100 = 47.85
Coordination Across Classes	P = 11.25 / 26.25 x 100 = 43; C = 11 / 26.25 x 100 = 42; R = 16.50 / 26.25 x 100 = 63; MS = 11.50 / 26.25 x 100 = 44
Systems Thinking Index	44
Discrepancy Index	(11.25 + 16.50) / (11 + 11.50) = (27.75 / 22.50) = 1.23

James' overall cognitive profile reveals his strong ability to think systemically, as the total sum of thought forms relative to the theoretically highest attainable score shows (Fluidity Index 50.25 and Dialectical Strength 47.85). The Discrepancy Index reveals that James is slightly stronger as a critical thinker than as a constructive thinker.

Figure 4.2 shows James' mental space. The blue lines represent his current degree of dialectical thinking as evident in the number of thought forms and their coordination across four classes. It also reveals the strength of his fluidity in the relationship domain, and points out the area suited for developmental intervention (context). The outer boundaries of the quadrant represent the total available space for expansion of James' current thinking.

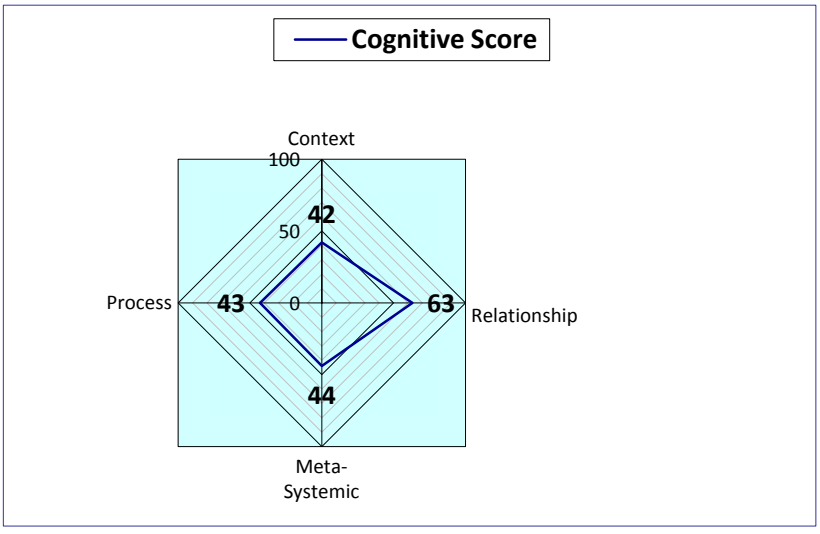


Figure 4.2. Map of James' cognitive profile.

Richard. Richard (age 65), an experienced trial lawyer with a broad and rich background as a community activist, journalist, negotiations expert, and member of multiple boards, is the recipient of numerous professional recognitions. Richard joined the integrated arts center in his city in 2006 as president and chief executive officer. The center operates as a complex not-for-profit corporation that houses four different artistically related organizations and three non-corporate divisions: the symphony, the theater, and the museum. Richard is ultimately responsible for the entire institution, but he views his primary authority as being in the legal area. He explained:

> In a not-for-profit, you're operating as much under the tacit "social contract" of how it ought to operate so that the people who need to feel that they can help grow the effort are, in fact, in control. I don't hire and fire the heads of the divisions, and they don't report to me; they report to their boards, but I have the overall responsibility for the whole institution.

He likes to say that his main role is the chief cheerleader and principal guidance counselor.

Richard was specifically hired by the organization's former chair to lead the effort of creating a sustainable institution by bringing together outstanding artistic leadership in a number of areas and creating a structure to support that leadership. Richard's interest and passion for the arts, as well as his connections in the community made him a perfect candidate for the job. His major challenge was to make this institution financially sustainable and to manage the vastly different cultures inherent in the various art forms, bring them together, and inspire them to find value in collaboration.

Immediately upon being appointed to his current leadership position, Richard initiated major cultural change in his role of initiating sponsor. He attributes his success as sponsor to his position in the community:

> Your ability to sponsor change is directly related to your credibility as a leader in the community. Now, the communities can be just the artistic community, or the board of

directors of the organization, or it can be a larger community. I think there was a sense that somebody with a lot of experience, far more than I have in actually managing a facility like this, but with no immediate connectivity to the community would be challenged trying to make changes. It's less about gravitas than the sponsorship of the community to come make changes. If the leader isn't sponsored by the authority, you have nowhere to turn to be a sponsor of change.

Table 4.12 represents the summary of Richard's cognitive profile. More detailed scores are explained in subsequent tables.

Table 4.12

Summary of Richard's Composite Cognitive Profile

Fluidity Index:	62.25
Dialectical Strength:	62.88
Frequency of TFs by Quadrant:	10, 11, 20, 18
Coordination of TFs:	34, 42, 91, 84
Utilization of TFs:	24 (85.71%)
Discrepancy Index:	0.99

Table 4.13

Richard's Cognitive-Behavior Graph

Bit #	Process	Context	Relationship	Metasystems
		Task House		
1		8 [1] 10 [2]		
2		14 [.5]	19 [1]	
3			21[1]	
4		9 [1]	21 [1]	
5		14 [.5]	15 [.5]	28 [2]
6			16 [2]	22 [1]
7			16 [1] 17 [2]	
8		11 [.5]	17 [.5]	24 [.25]
9	3 [.5]		21 [1]	22 [.5]
10	5 [1]			
11	2 [2]			
12				24 [2]
13			16 [1.5] 21 [.5]	

Self House

14	4 [.5] 5 [.5] 6 [1]			24 [.5]
15			21 [1]	
16	5 [.5]		20 [1.5]	
17		14 [1]		28 [1]
18	3 [.5]			24 [1.5]
19			20 [1]	24 [1]
20				24 [1] 25 [1]
21	5 [1.5]			
22			17 [2]	
23				28 [3]

Organizational House

24			15 [.5]	26 [1.5]
25			18 [2]	
26		14 [2]		
27				27 [1]
28				26 [1]
29	2 [.5]			24 [.5]
30			21 [1]	
31				27 [1] 28 [1]
32		9 [.5] 12 [.5]	21 [1]	
33		8 [1]	16 [.5]	
	TOTAL: 8.5	TOTAL: 10.5	TOTAL: 22.5	TOTAL: 20.75

Richard's cognitive behavior graph indicates that 33 bits contained dialectical thought forms and were used for scoring. In this configuration, the maximum attainable score for this interview was 99 (33 bits x max weight of 3 points per bit).

Table 4.14

Frequencies and Average Weight of Individual Thought Forms: Richard

03 Richard					
Process	Frequency	Average Weight	Context	Frequency	Average Weight
1. Unceasing change	0	0.00	8. Parts within a whole	2	1.00
2. Preservative negation	2	1.25	9. Equilibrium of a whole	2	0.75
3. Interchange of opposites	2	0.50	10. Structures, functions, layers of the system	1	2.00
4. Patterns of interaction	1	0.50	11. Hierarchical nature of systems	1	0.50
5. Practical character of knowledge	4	0.86	12. Stability of system functioning	1	0.50
6. Critique of denying change	1	1.00	13. Frames of reference, traditions, ideologies	0	0.00
7. Embedding in process, movement	0	0.00	14. Multiplicity of contexts	4	1.00
Relationship	Frequency	Average Weight	Metasystemic	Frequency	Average Weight
15. Existence and value of relationship	2	0.50	22. Limits of stability, harmony, and durability	2	0.75
16. Value of bringing into relationship	4	1.25	23. Value of conflict leading to development	0	0.00
17. Critique of absence of holistic thinking	3	1.50	24. Value of developmental potential	7	0.96
18. Relate different values and judgments	1	2.00	25. Evaluative comparison of systems	1	1.00
19. Structural aspects of relationship	1	1.00	26. Process of coordinating systems	2	1.25
20. Patterns of interaction	2	1.25	27. Open, self-transforming systems	2	1.00
21. Constitutive, intrinsic relationships	7	0.93	28. Integration of multiple perspectives	4	1.75

Table 4.15

Unweighted Utilization of Thought Forms: Richard

	Process	Context	Relationship	Metasystems
Unweighted utilization of DTFs per class	5/7	6/7	7/7	6/7
Total unweighted utilization of DTFs		24/28 x 100 = 85.71%		

Richard is an exceptional transformational thinker with a very focused systemic and holistic view of the world. Like James, he is highly aware of the connectedness of things in the world (people, things, or systems). Accordingly, he is able to see things as forms, as organized wholes, or as transformational systems being composed of interrelated parts and being in a process of unceasing transformation.

Table 4.13 reveals a significant difference in using the relationship and metasystemic TFs versus the process and context TFs. In a practical sense, it shows the dichotomy in Richard's present thinking between high-level, intuitive, holistic, and systemic thinking and backing it up with contextual details that can be observed and that his thoughts relate to, and the individual processes that may contribute to what he sees.

Richard's developmental task would be to become aware of this dichotomy between relational and transformational TFs and then to strengthen his focus on contextual details and individual processes. With some practice at being more explicit regarding what he sees and thinks about pragmatically in terms of details, contexts, structures, and functions, Richard could further strengthen his ability to think dialectically.

In terms of his use of individual thought forms, Richard's ability to think systemically dominates his fluidity of thought. His most frequently used TFs are 21, 24, and 28 (awareness of constitutive relationship, valuing developmental potential leading to a new level of functioning,

and the ability to integrate multiple perspectives in order to define complex realities). Table 4.14 shows not only Richard's most frequently used thought forms, but it also demonstrates that the average weight is much higher than that of the other study participants. The combination of high utilization rate and high weight places Richard in phase 4 of dialectical thinking.

Table 4.16

Richard's Cognitive Profile

Overall Dialectical Strength (DS)	DS = (8.5 + 10.5 + 22.5 + 20.75) = 62.25 / 99 x 100 = 62.88
Coordination Across Classes	P = 8.5/ 24.75 x 100 = 34; C = 10.5 / 24.75 x 100 = 42; R = 22.5 / 24.75 x 100 = 91; MS = 20.75 / 24.75 x 100 = 84
Systems Thinking Index	84
Discrepancy Index	(8.5 + 22.5) / (10.5 + 20.75) = (31 / 31.25) = 0.99

Richard's overall cognitive profile reveals his remarkable ability to think systemically, as the total sum of thought forms relative to the theoretically highest attainable score shows (Fluidity Index = 62.25 and Dialectical Strength = 62.88). The Discrepancy Index reveals that Richard's critical and constructive thinking are in perfect balance. When comparing Richard's and James' cognitive profiles, we can observe a similar pattern of thinking, yet the two profiles are qualitatively different. It is the weight of individual thought forms that accounts for the difference. This example illustrates the potential of the highly individualized nature of the CDF assessment to tailor developmental interventions for each individual based on empirical evidence.

Figure 4.3 shows Richard's mental space and clearly delineates avenues for further growth—expanding the process and context thinking.

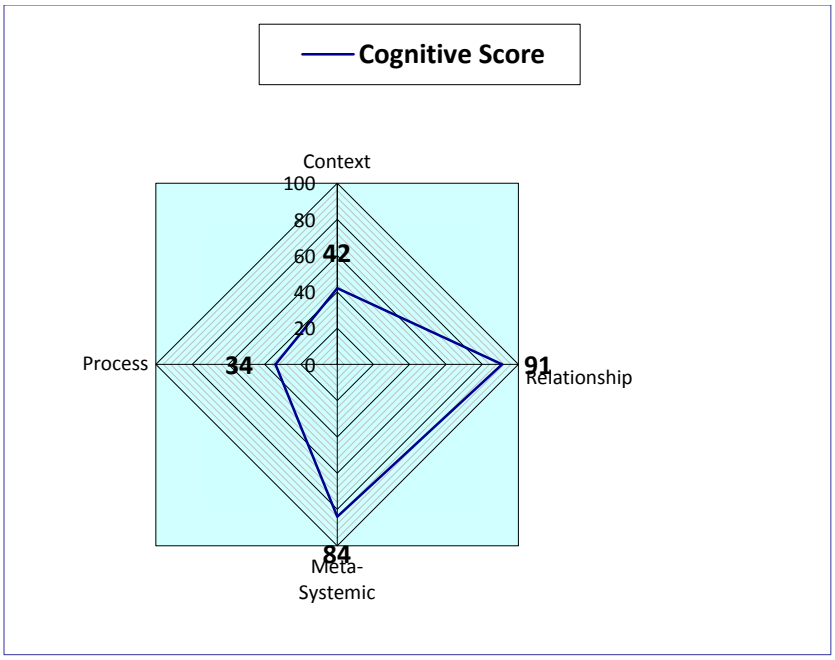


Figure 4.3. Map of Richard's cognitive profile.

Andrew. Andrew (age 66) served as chief executive officer of the largest consolidated healthcare organization in his state. As CEO, he had ultimate management authority over the organization of 8,500 employees that consisted of nine acute care hospitals, two nursing homes, three to four homecare agencies, and a very large clinic of over 200 doctors. A board of directors appointed by two faith-based groups, one Catholic and one Lutheran, hired him to reorganize the two hospital systems into one consolidated operating organization owned by both sponsors and run it as a merged, single-management organization. The goals were to assure that the resultant faith-based, not-for-profit organization would become the largest healthcare organization in the region and to achieve economies of scale throughout the business and clinical sides of the organization. This would also provide the organization more resources with which to negotiate managed care contracts.

Aware of unceasing change in the healthcare industry, Andrew embarked on leading system-wide rebuilding and reorganization worth about $250 million in total cost. He and the

group changed the operational model across the system, creating a uniform approach for the care of outpatients and inpatients. They also remodeled and expanded four urban hospitals and built a new hospital, which was the first hospital of its type in about 30 years in the region. In addition, they installed a new information system across all the hospitals, including the new hospital, which became the first paperless hospital in the region.

When asked to recount his most challenging task during consolidation, Andrew described merging two different cultures into one. It was something that, during an era of massive mergers of hospitals, many other healthcare organizations had attempted to do and failed. According to Andrew, merging cultures was the hardest, but also the most rewarding work he has ever done. First, he led the effort of putting two different cultures and about 15 subcultures together, and then formed one new organization that would be there for the long term. Andrew explained:

> It had taken them about three to four years to get the cultures melded, to get things moving. It took us about three to five years to really get the organization at a place that we could move ahead dramatically in terms of new service locations and quality of care.

Andrew vividly described the outcome of this massive organizational transformation:

> Looking at it in retrospect, we were very successful. The organization exists today; it's still the strongest in the region. Even with the struggles of the two sponsors, the religious backgrounds being different, the employee and physician cultures being dramatically different, we were able to consolidate the business side, and save millions of dollars in total operating costs. But more importantly, create a better care product for our patients.
>
> What came out of it was a much more agile organization that would address future change quicker, which I felt, if you're going to leave a legacy, leave an organization that is able to survive, and so we had people that were looking forward to change, that were changing on their own in their own work areas, and that to me was a great evidence of success, rather than folks just sort of sitting back and waiting to see whether it's going to work, or whether it should work or not.

As we discussed the specific role of a sponsor, it was obvious that Andrew clearly understood the peculiarity of the role and its critical importance for a successful outcome. He explained:

> Well, the leader needs to set the vision, and be passionate, and to promote it consistently, incessantly. The manager needs to know how to make it happen, and they do not necessarily have to be the visionary. To be a sponsor of successful change, you've got to own, and have that vision, but you also have to know how it needs to be implemented. That doesn't mean that you have to implement it, because you can't in most cases. But if you don't understand the components of making that vision come true, it doesn't happen. . . . Where I was successful, I again owned the vision, and I repeated the vision . . . I always had to make sure that they had the talent behind them, and the resources to make it happen. . . . We have three things that we can deal with: time, talent, and money. If we have any two we can do really well; if we have all three, we are blessed, but we've got to find a way to coordinate that, and to make it happen. . . . The other thing about being a good leader . . . I think it is important to put change in its proper context. So, you always have to find a way to explain the context of the change that you're sponsoring. It's got to be put in the context of your overall experience, and I found that where people have failed it is because they have not explained the context of the change in relation to the overall organization.

Table 4.17 represents the summary of Andrew's cognitive profile. More detailed scores are explained in subsequent tables.

Table 4.17

Summary of Andrew's Composite Cognitive Profile

Fluidity Index:	51.50
Dialectical Strength:	61.30
Frequency of TFs by Quadrant:	13, 19, 9, 24
Coordination of TFs:	48, 49, 31, 118
Utilization of TFs:	24 (85.71%)
Discrepancy Index:	.47

Table 4.18

Andrew's Cognitive-Behavior Graph

Bit #	Process	Context	Relationship	Metasystems
		<u>Task House</u>		
1		10 [1] 11 [.5]	21 [.5]	
2		14 [.5]	16 [.5]	25 [.25] 26 [.25]
3				25 [1]

4				26 [1] 22 [1] 26 [1]
5			18 [.5]	23 [.5] 28 [2]
6	5 [.5]	13 [.5]		
7	1 [1] 2 [1]			
8	5 [.5]	13 [.5]	17 [.5] 21 [.5]	26 [1]
9		12 [.5]	16 [.5]	24 [1]
10		13 [.25] 14 [.25]		26 [1] 28 [1.5]
11	3 [.75]			26 [.75]
12	4 [.5]	8 [.5]		
13				23 [1] 26 [1]
14				27 [1]
		Organizational House		
15				22 [3]
16		10 [.5] 11 [.5]	18 [2]	
17		8 [.75] 10 [.75]		26 [1.5]
18		10 [.25] 12[.25]		
19		12 [1]		
20		8 [.5]	15 [.5] 17 [1]	28 [1]
21	2 [.5] 3 [.5]			23 [.5]
22	3 [1.5]			
23	2 [.75]			24 [.75]
		Self House		
24		14 [.5]		24 [1]
25	7 [.75]	14 [.75]		
26	7 [1]			
27	2 [.75]			24 [.75]
28				27 [1]
	TOTAL: 10	TOTAL: 10.25	TOTAL: 6.5	TOTAL: 24.75

Andrew's cognitive behavior graph (see Table 4.18) indicates that 28 bits contained dialectical thought forms and were used for scoring. In this configuration, the maximum attainable score for this interview was 84 (28 bits x max weight of 3 points per bit).

Table 4.19

Frequencies and Average Weight of Individual Thought Forms: Andrew

04 Andrew					
Process	Frequency	Average Weight	Context	Frequency	Average Weight
1. Unceasing change	1	1.00	8. Parts within a whole	3	0.58
2. Preservative negation	4	0.75	9. Equilibrium of a whole	0	0.00
3. Interchange of opposites	3	0.92	10. Structures, functions, layers of the system	4	0.63
4. Patterns of interaction	1	0.50	11. Hierarchical nature of systems	2	0.50
5. Practical character of knowledge	2	0.50	12. Stability of system functioning	3	0.58
6. Critique of denying change	0	0.00	13. Frames of reference, traditions, ideologies	3	0.42
7. Embedding in process, movement	2	0.88	14. Multiplicity of contexts	4	0.50
Relationship	Frequency	Average Weight	Metasystemic	Frequency	Average Weight
15. Existence and value of relationship	1	0.50	22. Limits of stability, harmony, and durability	2	2.00
16. Value of bringing into relationship	2	0.50	23. Value of conflict leading to development	3	0.67
17. Critique of absence of holistic thinking	2	0.75	24. Value of developmental potential	4	0.81
18. Relate different values and judgments	2	1.25	25. Evaluative comparison of systems	2	0.63
19. Structural aspects of relationship	0	0.00	26. Process of coordinating systems	8	0.94
20. Patterns of interaction	0	0.00	27. Open, self-transforming systems	2	1.00
21. Constitutive, intrinsic relationships	2	0.50	28. Integration of multiple perspectives	3	1.50

Andrew's Fluidity Index of 51.50 indicates an exceptionally high degree of overall ability to think in complex terms. He is a strong transformational thinker, which is evident in the high presence of metasystemic thought forms. More weight is given to processes and context than to relationships and thus, Andrew exhibits an excellent ability to see the big picture and/or take multiple perspectives. Accordingly, he is able to see things as forms, as organized wholes, or as transformational systems being composed of interrelated parts and being in a process of unceasing transformation. Both his task house and organizational house domains reveal a strong dominance of context and metasystemic thoughts, pointing to his stronger tendency for constructive thinking (35) than for critical thinking (16.5).

Andrew uses a broad range of TFs, as shown in Tables 4.15 and 4.16; only four TFs (6, 9, 19, and 20) did not appear during the interview. Process and context TFs were used more frequently and at higher weights than relationship TFs. Some guided practice with the intentional use of relationship TFs could substantially increase clarity of interconnectedness of things in the world (people, things, or systems).

The most significant finding in Andrew's profile is that all the TFs that dominate his thinking are metasystemic (22, 24, 26, and 28). He is profoundly aware of the limits of a system's stability and of seeing systems as living forms that are constantly changing (22); he values developmental movement toward greater inclusiveness and higher levels of balance (24). He demonstrates a strong ability to understand and articulate the complexity of coordinating two or more systems (26) and he integrates multiple perspectives in order to define complex realities (28).

Table 4.20

Unweighted Utilization of Thought Forms: Andrew

	Process	Context	Relationship	Metasystems
Unweighted utilization of DTFs per class	6/7	6/7	5/7	7/7
Total unweighted utilization of DTFs	24/28 x 100 = 85.71%			

Andrew's high utilization of dialectical thought forms (85.71%), combined with an exceptionally high number of metasystemic thought forms, lead to a Systems Thinking Index of an exceptionally high 118 points. This score places Andrew in phase 4 of dialectical thinking in spite of a somewhat weaker relationship thinking score.

Table 4.21

Andrew's Cognitive Profile

Overall Dialectical Strength (DS)	DS = (10 + 10.25 + 6.5 + 24.75) = 51.50 / 84 x 100 = 61.30
Coordination Across Classes	P = 10/ 21 x 100 = 48; C = 10.25 / 21 x 100 = 49; R = 6.5 / 21 x 100 = 31; MS = 24.75 / 21 x 100 = 118
Systems Thinking Index	118
Discrepancy Index	(10 + 6.5) / (10.25 + 24.75) = (16.5 / 35) = .47

His exceptionally high Systems Thinking Index score shows Andrew's outstanding ability to coordinate different aspects of reality (classes of thought forms). His use of metasystemic thought forms is well balanced in all three domains of his internal workplace.

Although Andrew's use of concepts across all four quadrants of dialectics is relatively well balanced, a weaker use of relationship TFs leads to an imbalance in thinking constructively versus critically. Andrew is a stronger as a constructive thinker than as a critical thinker, combining contextual thinking (seeing the value in a system organized in functions and

structures) that appears as a static system, and adding a dynamic component by focusing on motion, interactions, and what is emerging through unceasing change.

Andrew's developmental task would be to consolidate his critical thinking by bringing together a focus on process and relationship. Also, he would need to increase his awareness of various relationships within and between stable configurations of a system.

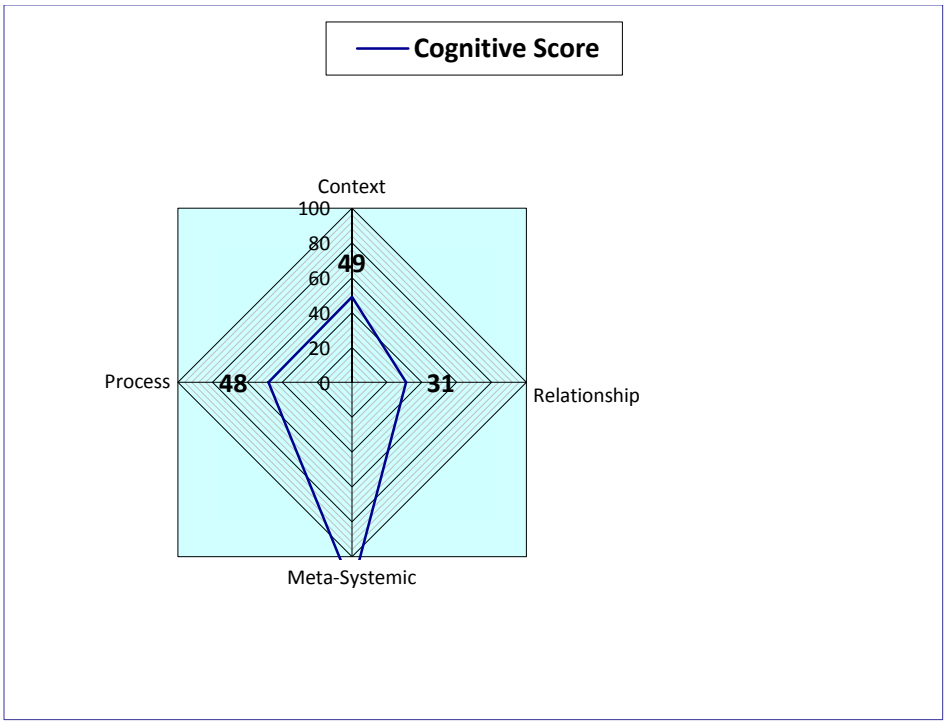


Figure 4.4. Map of Andrew's cognitive profile.

Michelle. Michelle (age 37) has had a very dynamic career path in the pharmaceutical industry; over the past several years she launched a start-up company followed by several mergers, leading to her sponsorship role during a major international merger of two biotech companies. When her organization recently merged with a global player in biotech, Michelle became the head of business process excellence for a new organization operating in Europe as well as in the U.S. In her current role, she is a high-level decision-maker from a budget perspective and for decisions regarding business process management and operational

excellence. Two main components characterize her realm of responsibility: the new business process model to be used by a new organization and the behavioral components of ongoing and upcoming education and training.

Michelle proactively manages business challenges and she seeks to understand her coworkers, her environment, and the larger context of her work prior to making decisions. She learned a lot about her European counterparts, who were not accustomed to process management, and spent a great deal of time educating people in various parts of the new organization about the organizational design of re-engineering and the ways it is used in a factory setting.

During the interview, she vividly remembered the two most complex change processes she managed. Both were complex, but each one in a different way: one was the merger between an East Coast and West Coast company, and the most recent one was the merger between a U.S. and an international company. Her challenges were amplified by being a woman, by cultural differences, and by her age, but she overcame all the obstacles and emerged as a stronger, more successful and accomplished professional of great maturity and wisdom, as is evident in her impressive cognitive profile.

Michelle spoke of her work with pride. As the company operates across different countries, cultural differences could be challenging, yet those differences pale in comparison to the company's unifying mission of being in business to help patients. She said:

> There's no question about why is this company in existence. It's to meet unmet medical needs, and I think people rally around that, and have a lot of pride in what they do. I'm very lucky that I work in an organization that helps patients. I think we're very lucky.

Michelle's view of sponsorship is comparable to other participants' views:

> I think being a leader and being an effective sponsor have a lot of similarities. So, when I think about anything that I've personally had to sponsor, I've had to really articulate a

clear vision for what it is that we are tasked to do, whether it's transformational. For the most part it's been mostly transformational changes, and the integration of new business process model, etc. I've also had to remove barriers where I see that there is maybe some resistance, so I've had to go out and speak to those people, help understand what is the resistance? Why the resistance? What do we need to do to really make sure that they understand what's going on? And I guess the third one would be working just as hard as the rest of my team, so I think there is a misperception of being a sponsor means you're just at a higher level, and that you own the resources, and that you just tell everyone what to do, and then you kind of check in on them once in a while. And I think, too, that's really nice wording of a sponsor, but I don't think that's an effective sponsor, and being a true sponsor, I think you really need to work hard, and you need to show people that what they do is valuable. And if there's any performance issues, or I think I've learned a lot from our consulting partners in terms of black holes, and being proactive enough to know that there are none, and knowing who those people are to be either change agents or what's needed, but when there are obstacles being those black holes, they need to be managed, because the initiative, or the transformational change won't happen.

Table 4.22 represents the summary of Michelle's cognitive profile. More detailed scores are explained in subsequent tables.

Table 4.22

Summary of Michelle's Composite Cognitive Profile

Fluidity Index:	42.50
Dialectical Strength:	48.85
Frequency of TFs by Quadrant:	17, 18, 11, 15
Coordination of TFs:	48, 48, 38, 61
Utilization of TFs:	23 (82.14%)
Discrepancy Index:	.79

Table 4.23

Michelle's Cognitive-Behavior Graph

Bit #	Process	Context	Relationship	Metasystems
		Task House		
1	5 [.5]			
2	2 [.25]	8 [.25]		
3	5 [.75]			25 [.75]
4	3 [.5]	12 [.5]		22 [.5]
5	4 [.75]	8 [.75]	17 [.5]	

		10 [.5]		
6	4 [.5] 7 [.5]	10 [.5]	16 [.5]	
7	5 [.75]	11 [.25]		
8		8 [.5] 12 [.5]		
9	4 [.25] 7 [.25]		16 [.5]	
10				24 [1]
11		11 [.5]		
12		12 [1]		28 [1]
		Organizational House		
13		10 [.75]		23 [.25]
14	4 [1.5]	10 [1.5]		
15				22 [1]
16	4 [1] 5 [.5]	10 [.5] 12 [.5]	18 [.25] 20 [.25]	
17			18 [.5]	
18		14 [.5]	18 [.25]	25 [.25]
19			21 [2]	
20		8 [.5] 10 [.5]		
21				26 [.5]
22				25 [1] 28 [2]
23	7 [.5]		18 [.5]	26 [.5] 28 [.5]
		Self House		
24	1 [1]			
25				23 [2]
26	1 [.5]		20 [1]	
27				23 [1] 24 [1]
28			20 [2]	
29	2 [.5]	13 [.5]		
	TOTAL: 10.5	TOTAL: 10.5	TOTAL: 8.25	TOTAL: 13.25

Michelle's cognitive behavior graph indicates that 29 bits contained dialectical thought forms and were used for scoring. In this configuration, the maximum attainable score for this interview was 87 (29 bits x max weight of 3 points per bit).

Table 4.24

Frequencies and Average Weight of Individual Thought Forms: Michelle

05 Michelle					
Process	Frequency	Average Weight	Context	Frequency	Average Weight
1. Unceasing change	2	0.75	8. Parts within a whole	4	0.50
2. Preservative negation	2	0.38	9. Equilibrium of a whole	0	0.00
3. Interchange of opposites	1	0.50	10. Structures, functions, layers of the system	6	0.70
4. Patterns of interaction	5	0.80	11. Hierarchical nature of systems	2	0.38
5. Practical character of knowledge	4	0.63	12. Stability of system functioning	4	0.63
6. Critique of denying change	0	0.00	13. Frames of reference, traditions, ideologies	1	0.50
7. Embedding in process, movement	3	0.42	14. Multiplicity of contexts	1	0.50
Relationship	Frequency	Average Weight	Metasystemic	Frequency	Average Weight
15. Existence and value of relationship	0	0.00	22. Limits of stability, harmony, and durability	2	0.75
16. Value of bringing into relationship	2	0.50	23. Value of conflict leading to development	3	1.08
17. Critique of absence of holistic thinking	1	0.50	24. Value of developmental potential	2	1.00
18. Relate different values and judgments	4	0.36	25. Evaluative comparison of systems	3	0.67
19. Structural aspects of relationship	0	0.00	26. Process of coordinating systems	2	0.50
20. Patterns of interaction	3	1.08	27. Open, self-transforming systems	0	0.00
21. Constitutive, intrinsic relationships	1	2.00	28. Integration of multiple perspectives	3	1.17

Table 4.25

Unweighted Utilization of Thought Forms: Michelle

	Process	Context	Relationship	Metasystems
Unweighted utilization of DTFs per class	6/7	6/7	5/7	6/7
Total unweighted utilization of DTFs	23/28 x 100 = 82.14%			

Michelle's Fluidity Index of 42.50 (see Table 4.23) indicates her overall high degree of ability to think in complex terms. She is a balanced, transformational thinker with good coordination of TFs across all four quadrants, which is evident in the high presence of metasystemic thought forms. As more weight is given to processes and context than to relationships, she demonstrates an excellent ability to see the big picture and take multiple perspectives. Accordingly, she is able to see things as forms, as organized wholes, or as transformational systems being composed of interrelated parts and in a process of unceasing transformation.

Michelle uses a broad range of TFs (23 out of 28). Process and context TFs are expressed at slightly higher weights (clarity of expression) than relationship TFs. Some guided practice of the intentional use of relationship TFs could substantially increase her clarity of the interconnectedness of things in the world (people, things, or systems).

TFs 4, 10, 20, 23, and 28 dominate Michelle's thinking. She is aware of patterns of ongoing interactions in processes (4); she understands well the nature of a system organized in structures, functions, and layers (10); she is aware of patterns of interaction in relationships (20); she sees and values conflict as a driver of development (23); and she is able to integrate multiple perspectives in order to define complex realities (28).

Table 4.26

Michelle's Cognitive Profile

Overall Dialectical Strength (DS)	DS = (10.5 + 10.5 + 8.25 + 13.25) = 42.50 / 87 x 100 = 48.85
Coordination Across Classes	P = 10.5/ 21.75 x 100 = 48; C = 10.5 / 21.75 x 100 = 48; R = 8.25 / 21.75 x 100 = 38; MS = 13.25 / 21.75 x 100 = 61
Systems Thinking Index	61
Discrepancy Index	(10.5 + 8.25) / (10.5 + 13.25) = (18.75 / 23.75) = .79

Michelle's profile provides evidence of her strong potential for further development by increasing the existing weight of individual thought forms. Her next developmental task would be to practice further elaborating the concepts she is using. Her relatively high Fluidity Index (42.50) indicates use of a broad repertoire of thought forms across all four classes and, with some practice, could substantially increase her Dialectical Strength (ratio between actual and potential maximum use of thought forms). Her Systems Thinking Index shows her strong ability to coordinate different aspects of reality (classes of thought forms) and to hold a systems view of her internal workplace and her role in it.

Michelle's Discrepancy Index of 18.75 / 23.75 or .79 (see Table 4.26) shows she is a slightly stronger as a constructive thinker than as a critical thinker who combines the contextual thinking (seeing the value in a system organized in functions and structures) that appears as a static system. Michelle adds a dynamic component by focusing on motion, interactions, and what is emerging through unceasing change.

The following example illustrates an opportunity to help move a person from a process-context dominated frame of reference toward metasystemic, or transformational, thinking. In the following excerpt, Michelle pointed out the value of conflict, but she stayed in the realm of differences in opinions and thesis-antithesis movement (TFs 2 and 13). Had she framed it in a

systemic context and been explicit about the value that conflict could bring, she would have moved to the metasystemic domain (TF 23).

> I think debate and conflict is extremely healthy . . . I think saying, "I disagree, and here's why," or, "Have you seen this data?" Being very open and forthright about what it is that you disagree on, not talking about someone behind their back in a different meeting, so healthy conflict, and debate, verbally, is very good, via e-mail, I don't think it's appropriate unless it had to be, and being able to say, "Okay, let's maybe not make the decision right now; maybe we do need another week to sit on this. Let me digest it." Not every decision had to be made by this, but some do. And that's okay, as well, just to be real flexible about that kind of stuff.

Further inquiry into the broader implications of debate and conflict and the integration of different views would most likely have elicited metasystemic thinking, something that skilled use of thought forms could accomplish.

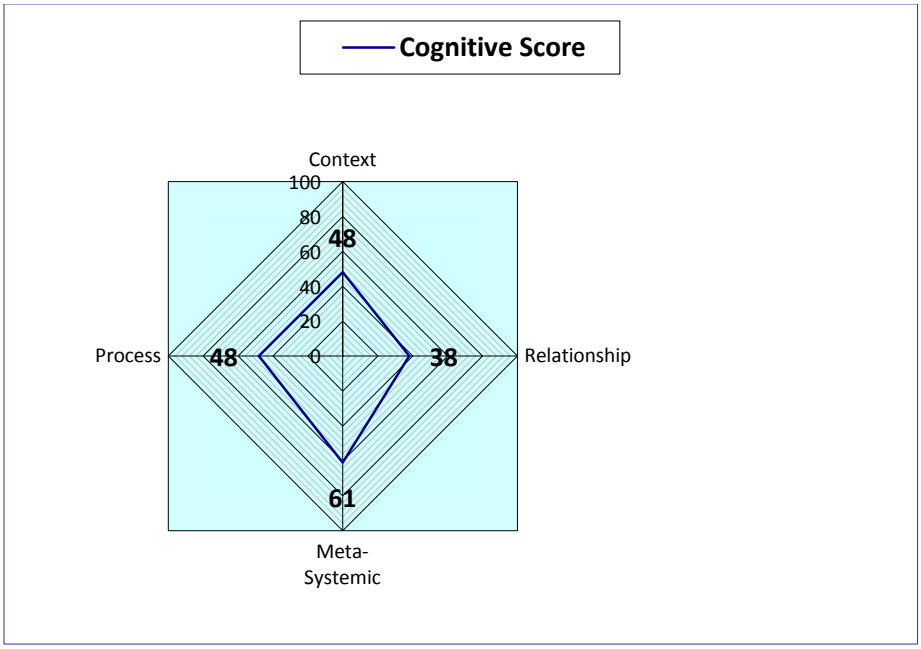


Figure 4.5. Map of Michelle's cognitive profile.

Ted. Ted (age 49) holds a senior leadership position in a global pharmaceutical company where he is responsible for the technical aspect of manufacturing plants worldwide, from Asia to Europe and throughout the United States. In essence, he is accountable for timely delivery of

high-quality products at a reasonable cost to the customer. In his day-to-day work, he is called upon to balance managing the present with preparing for the future. Ted is concerned with planning strategically for a five to 10-year horizon and then ensuring excellence in operations that should lead to a desired future performance. To successfully implement the company's strategic plan, their overall strategy is organized around four distinct initiatives: (a) excellence in operations, (b) network asset optimization (including both physical assets and people), (c) focus on the business process of how work gets done and defining what should be global versus what should be local, and (d) talent leadership workforce development. The latter area is focused on how performance improvement can become better and better and on recruitment, retaining, and developing the company's people.

Ted is currently sponsoring one of the four major strategic initiatives: rearranging the company's manufacturing network to achieve better operational efficiency following a recent merger with another large organization. This type of change has a major impact on physical assets, on people, and on the way business gets done. For Ted, sponsorship equals leadership. He explains:

> I don't really separate it [sponsorship]; to me it's leadership. I separate leadership from management. Management, okay, I've got goals; I have metrics; I do reviews. To me that's management. Leadership is setting strategic vision; and what skill sets do you need? Do you have the right people in place? How do you motivate people, inspire them, get them fired up to follow you where you want to go? Those type of things.
>
> So, when I think of sponsorship, I'm usually thinking of big changes versus small changes. Big changes mean that you're going to be affecting the way people either think, do work; it's going to be some kind of disruption. When I think of disruption, I think of understanding that disruption, and how are we going to get people aligned on it, and then how are we going to support that change, and help drive it down into the organization, versus other leadership principles, or leadership aspects, or day-to-day operations [that] may not take that level of energy and consumption. So, those are kind of the two, so I'm also a believer that if you say you're sponsoring eight different things, you're probably not sponsoring very well. There are probably a couple of things you can sponsor well, if you wanted to really change the way work is being done.

> Sponsorship is you're actively engaged in making sure the outcome of this big change realizes the benefits. And so we'd spent time educating my team from what that means, what it looks like, and by no means are we great at it yet. To me, there are three building blocks in strategy implementation: the sponsorship, the strategic intent, and the level of commitment. To me the project management, the physical execution of it, that stuff, I think, is easier than the other three.

During our interview, it was obvious Ted thoroughly understood his task as a sponsor of change and was aware of all the peculiar challenges inherent in the role. His awareness of cultural differences, his ability to find common ground among stakeholders, his awareness of different degrees of accountability, and his attention to detail without losing sight of the whole assured me Ted could not have sponsored a major change without his ability to think in complex terms evidenced in using a broad repertoire of thought forms.

For Ted, sponsorship is a journey. He explained:

> There's problems you're fighting all the time, but I think staying true to what I call "staying true north," you may have to take detours to get there, but you don't change your true north, and you keep going at it.

The following reports provide some insights into the specific qualities of Ted's cognitive agility that may have an impact on his success as a sponsor. Table 4.27 represents the summary of Ted's cognitive profile. More detailed scores are explained in subsequent tables.

Table 4.27

Summary of Ted's Composite Cognitive Profile

Fluidity Index:	42.75
Dialectical Strength:	49.13
Frequency of TFs by Quadrant:	17, 22, 10, 13
Coordination of TFs:	55, 53, 33, 55
Utilization of TFs:	22 (78.57%)
Discrepancy Index:	.82

Table 4.28

Ted's Cognitive-Behavior Graph

Bit #	Process	Context	Relationship	Metasystems
		Task House		
1	7 [.5]	8 [.5] 13 [.5]		24 [.5]
2	4 [.75] 5 [1]		18 [.25]	
3	4 [.5] 5 [.25]	12 [.25] 14 [.25]	20 [.25]	
4	4 [.75]	10 [.75]		
5	2 [.75] 7 [.75]			22 [.5]
6				27 [.25] 28 [.25]
7	7 [.5]	8 [.5] 10 [.5]		
8	4 [1.5]			
9		10 [.25]		
10	5 [.75]			
11	5 [.5]	12 [1.5]		
12		10 [.25]	15 [.5]	
13		13 [.25]	15 [.25]	
		Organizational House		
14		10 [.5]		
15	4 [.5]	10 [.75] 11 [.25]		
16		11 [1]		
17	5 [1]			22 [1]
18	4 [.5]	8 [.25] 12 [.75]	20 [.5]	
19		14 [1]	18 [1]	
20	4 [.5] 5 [1]			
21				25 [.5] 26 [1.5]
22			17 [.5]	
23		13 [.25] 14 [.5]		26 [.75]

24				23 [2] 26 [1]
25			21 [2]	
26			18 [1]	
27			18 [1]	25 [1]
		Self House		
28				24 [2.5]
29		10 [.25] 14 [.5]		24 [.25]
	TOTAL: 12	TOTAL: 11.5	TOTAL: 7.25	TOTAL: 12

Ted's cognitive behavior graph indicates that 29 bits contained dialectical thought forms and were used for scoring. In this configuration, the maximum attainable score for this interview was 87 (29 bits x max weight of 3 points per bit).

Table 4.29

Frequencies and Average Weight of Individual Thought Forms: Ted

06 Ted

Process	Frequency	Average Weight	Context	Frequency	Average Weight
1. Unceasing change	0	0.00	8. Parts within a whole	3	0.42
2. Preservative negation	1	0.75	9. Equilibrium of a whole	0	0.00
3. Interchange of opposites	0	0.00	10. Structures, functions, layers of the system	7	0.46
4. Patterns of interaction	7	0.71	11. Hierarchical nature of systems	2	0.63
5. Practical character of knowledge	6	0.75	12. Stability of system functioning	3	0.83
6. Critique of denying change	0	0.00	13. Frames of reference, traditions, ideologies	3	0.33
7. Embedding in process, movement	3	0.58	14. Multiplicity of contexts	4	0.56
Relationship	**Frequency**	**Average Weight**	**Metasystemic**	**Frequency**	**Average Weight**
15. Existence and value	2	0.38	22. Limits of stability,	2	0.75

of relationship			harmony, and durability		
16. Value of bringing into relationship	0	0.00	23. Value of conflict leading to development	1	2.00
17. Critique of absence of holistic thinking	1	0.50	24. Value of developmental potential	3	1.08
18. Relate different values and judgments	4	0.81	25. Evaluative comparison of systems	2	0.75
19. Structural aspects of relationship	0	0.00	26. Process of coordinating systems	3	1.08
20. Patterns of interaction	2	0.38	27. Open, self-transforming systems	1	0.25
21. Constitutive, intrinsic relationships	1	2.00	28. Integration of multiple perspectives	1	0.25

Ted is a relatively balanced thinker with good coordination of thought forms across all four quadrants. However, he appears to be more comfortable in his thinking when dealing with processes and context than when pointing out relationships among people, situations, and systems. Ted is also a metasystemic thinker who is able to see things as forms, as organized wholes, or as transformational systems being composed of interrelated parts and being in a process of unceasing transformation, which is evident in the presence of all seven metasystemic thought forms.

Table 4.30

Unweighted Utilization of Thought Forms: Ted

	Process	Context	Relationship	Metasystemic
Unweighted utilization of DTFs per class	4/7	6/7	5/7	7/7
Total unweighted utilization of DTFs		22/28 x 100 = 78.57%		

Ted uses a broad range of TFs (22 out of 28). Process and context TFs dominate his thinking, leading to metasystemic thinking, while relationship TFs, although well represented (5 out of 7 TFs), occur with lower frequency and clarity of expression (weight). Some guided

practice of intentional use of relationship TFs could substantially increase clarity of the interconnectedness of things in the world (people, things, or systems).

The higher frequency of use of several TFs points to Ted's frames of reference when thinking about leading change and his own embeddedness in the process. Ted's table of frequencies and weights denotes his strong ability to recognize patterns of movements in interactive relationships (TF 4) and his emphasis on implementation signifies his awareness of the practical value of knowledge (TF 5). His deep understanding of the nature of his organizations is evident in his view of this as a system organized in structure, functions, and layers (TF 10). Finally, his simultaneous attention to a variety of contexts and events (TF 14) and his ability to relate different value and judgment systems (TF 18) are further demonstrations of his ability for complex thought.

In Ted's case, it is important to notice the TFs that did not occur in the interview (1, 3, 6, 9, 16, and 19) because five of them belong to the process and relationship quadrants, the quadrants that constitute critical thinking. This suggests that the absence of critical TFs may prevent Ted from further expanding his ability to think transformationally. Intentional practice in using the missing TFs may help him add the dynamic elements to the contexts he describes, thus increasing his metasystemic thinking.

Ted's use of several TFs illustrates his capability for dialectical thinking. For example, his view of conflict not as negative and something to be avoided, but as a motor for transformation is evidenced by his strong use of TF 23. Another example is TF 21, where he describes constitutive relationships in a more elaborate way (weight 2) than usual. The higher than usual frequency of using TFs 4, 5, and 10 indicates the influence of these TFs on his thinking, even though he did not express them in a highly elaborated fashion.

Table 4.31

Ted's Cognitive Profile

Overall Dialectical Strength (DS)	DS = (12 + 11.5 + 7.25 + 12) = 42.75 / 87 x 100 = 49.13
Coordination Across Classes	P = 12/ 21.75 x 100 = 55; C = 11.5 / 21.75 x 100 = 53; R = 7.25 / 21.75 x 100 = 33; MS = 12 / 21.75 x 100 = 55
Systems Thinking Index	55
Discrepancy Index	(12 + 7.25) / (11.5 + 12) = (19.25 / 23.5) = .82

Ted's major cognitive strength lies in his balanced thinking across all four classes of TFs. His overall Fluidity Index of 42.75 (Laske, 2009) places him in the 3rd phase of dialectical thinking.

Ted's Systems Thinking Index suggests (combined with maximum utilization of metasystemic thought forms) his strong ability to coordinate different aspects of reality (classes of thought forms). In addition, his use of metasystemic thought forms is well balanced in all three domains of his internal workplace.

A Discrepancy Index of .82 (19.25 / 23.5) indicates a slightly stronger constructive than critical orientation. This may be due, as mentioned earlier, to the lack of using several thought forms in the process and relationship quadrants.

Ted has opportunities for further increases in Dialectical Strength. Considering a high utilization of individual TFs and balanced use across all four classes, it is safe to assume strengthening the use of relationship TFs and increasing overall weight would help Ted move to the 4th phase of dialectical thinking. He would also benefit from practicing how to enrich his contextual thinking (seeing the value in a system organized in functions and structures) that appears as a static system by adding a dynamic component that focuses on motion, interactions, and what is emerging through unceasing change.

Figure 4.6 shows Ted's mental space. The blue lines represent his current degree of dialectical thinking, as evident in the number of thought forms and their coordination across four classes. It also reveals the strength of his fluidity in the process, context, and meta-systems domains, and points out the area suited for developmental intervention (the relationship domain). The outer boundaries of the quadrant represent the total available space for expansion of Ted's current thinking.

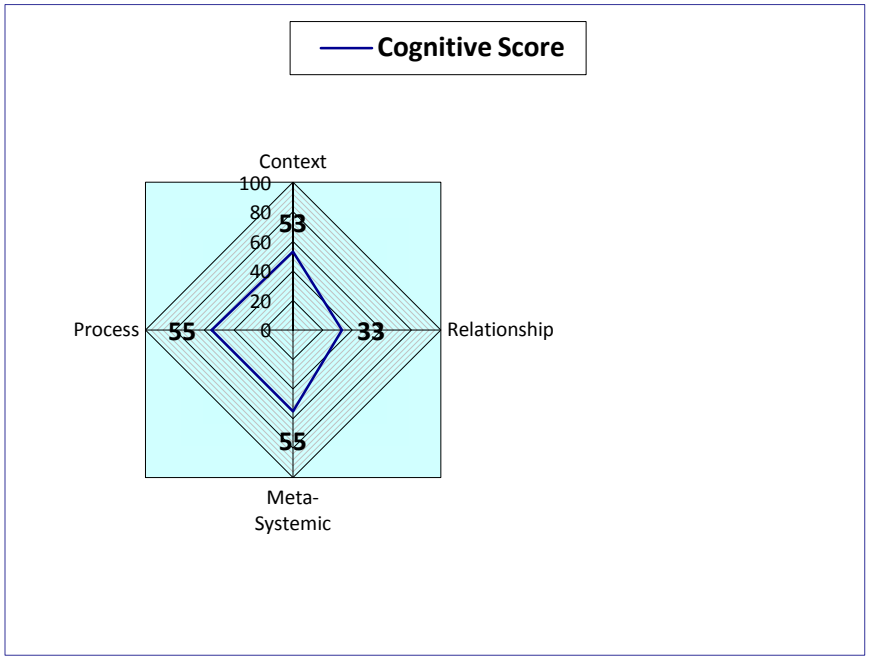


Figure 4.6. Map of Ted's cognitive profile.

Alice. Alice (age 54) is the president and chief executive officer of a large not-for-profit organization dedicated to transforming communities and neighborhoods in her region. Her multicultural staff consists of people from 50 to 60 countries ranging from Central and South America and Mexico to China. She describes her role in terms of two distinct sets of tasks. One is a typical administrative CEO role with authority over all contracts, people, and resources and ensuring that systems and processes are in place. This first set of tasks also includes her

responsibilities regarding legal requirements and all of the organization's contractually obligated mandates.

The second set of tasks related to her leadership role is, according to Alice, very different. She has been responsible for crafting and articulating the overall vision and direction of the organization. Alice describes her job as:

> Sort of staking out what our ambition is in terms of how we want to show up in the world, where geographically we want to be, where we want to focus our attention in terms of the parts of the world that we want to change, how we want to impact neighborhoods and clients. So those kinds of big directional ideas are where I make what my team members and my board feel are my most important contributions.

Alice believes her success lies in her unique strength to foresee opportunities for community transformation where others may not see them. For example, over 10 years ago, she recognized the intersection between the work the organization was doing in early childhood education and the work they were doing in community centers. She saw that both lines of work, in the way they were funded and in the policy ramifications and the policy design in those areas, were on a course to either potentially collide or leverage one another. Alice and her team made a commitment to extend their education strategy to include elementary schools; they began with a high-performing target elementary school. As they decided to commit to the development of community schools, these schools are now located in the center of a very rich set of community services. Instead of trying to transform the neighborhood through its school and not having all of the additional things that make neighborhoods and families strong (economic development, immigration services, etc.), they now have neighborhoods with the school, the credit union, and the tax centers all designed to be a full-scale intervention in an emerging neighborhood. Alice's major contribution is the implementation of community services initiatives combined with the vision for how those things work together.

Alice loves challenge and inspiration. For example, her organization only works in neighborhoods other people characterize as problem areas, so the nature of what they choose to do is, in and of itself, challenging, and they work on things that other people tend to feel are too controversial or too difficult, or perhaps are judged to have a low likelihood of positive impact. Alice feels that "just by what the organization chooses to do, they are challenged," and she finds that exciting. Instead of demonstrating how broken people are in order to justify them seeking help, Alice has chosen a different approach: to go into every situation the organization finds—every neighborhood, every complex immigration situation, every disaster recovery nightmare—and be relentless in their search for strength, and to find the strength and the aspirations of the people they serve and build on that. As it turns out, Alice affirms:

> There's tremendous power in going into places other people fear, and finding what's great and life-giving and affirming and inspiring, and then retelling that story, both to the people whose story it is and then to those who need to understand better. We build on that, and we can get a lot done. A lot of wonderful things happen because of that approach. So we choose to do it in those places, because that's where the most potential lies, the most undiscovered, unexplored potential.

Finding and sustaining resources to carry on a mission is another challenge. Alice explains:

> We live in a thriving, growing, increasingly diverse and complex region, and so for us to continue to remain a force in this region, to keep our city a place of opportunity for everyone, working for a better life, that's our purpose, and to continue to grow with the region is the challenge and the opportunity. Those are the parts that make this fun.

Unlike other participants in this study who were designated sponsors of a specific change initiative, Alice did not specify a particular transformational change. Yet, it was obvious her role was to initiate, lead, and support every major initiative undertaken by her organization. In those situations, she sees herself as a leader responsible for defusing fear:

> Part of what I do well is to take things that people think are very difficult, and very scary, and insurmountable, and likely to cause tremendous conflict, and say, you know what,

here's a way we can all be in this together. This is what we agree on. Here's what we hold dear collectively. And then work from that.

Table 4.32 represents the summary of Alice's cognitive profile. More detailed scores are explained in subsequent tables.

Table 4.32

Summary of Alice's Composite Cognitive Profile

Fluidity Index:	41.50
Dialectical Strength:	49.40
Frequency of TFs by Quadrant:	27, 5, 10, 19
Coordination of TFs:	86, 13, 32, 67
Utilization of TFs:	20 (71.42%)
Discrepancy Index:	1.48

Table 4.33

Alice's Cognitive-Behavior Graph

Bit #	Process	Context	Relationship	Metasystems
		Task House		
1		12 [.75]	16 [.75]	
2		8 [.5]	18 [1] 20 [.5]	
3			18[1]	23 [1]
4				24 [.5] 26 [1.5]
5		13 [.5]		22 [1] 24 [1]
6	3 [1]			24 [.5]
7	1 [.5] 3 [.5] 7 [.5]			
8				27 [1]
9	3 [.25] 5 [.25] 6 [.5] 7 [.5]			
10	3 [.5] 5 [.5]			

Organizational House

11		10 [.5]		
12	4 [.5] 5 [.75]		20 [.25]	
13	2 [.75] 3 [.75]			
14	4 [1]			
15	7 [1]			23 [.75] 24 [.75]
16	3 [.75]		18 [.75]	
17	4 [.5] 7 [.5]		20 [.5]	
18	5 [1.5]			
19	3 [.5] 5 [.5]			24 [.5]
20				27 [.5]
21		10 [.5]		27 [.5]

Self House

22	7 [1]			22 [1]
23				23 [1] 24 [1]
24				24 [.25] 28 [.25]
25			16 [1] 18 [.5] 20 [.5]	
26	6 [1.5]			22 [.5]
27	6 [.5]			24 [.5]
28	4 [.5] 5 [.5]			
	TOTAL: 18	TOTAL: 2.75	TOTAL: 6.75	TOTAL: 14

Alice's cognitive behavior graph indicates that 28 bits contained dialectical thought forms and were used for scoring. In this configuration, the maximum attainable score for this interview was 84 (28 bits x max weight of 3 points per bit).

Table 4.34

Frequencies and Average Weight of Individual Thought Forms: Alice

07 Alice

Process	Frequency	Average Weight	Context	Frequency	Average Weight
1. Unceasing change	1	0.50	8. Parts within a whole	1	0.50
2. Preservative negation	1	0.75	9. Equilibrium of a whole	0	0.00
3. Interchange of opposites	7	0.61	10. Structures, functions, layers of the system	2	0.50
4. Patterns of interaction	4	0.63	11. Hierarchical nature of systems	0	0.00
5. Practical character of knowledge	6	0.67	12. Stability of system functioning	1	0.75
6. Critique of denying change	3	0.83	13. Frames of reference, traditions, ideologies	1	0.50
7. Embedding in process, movement	5	0.70	14. Multiplicity of contexts	0	0.00
Relationship	**Frequency**	**Average Weight**	**Metasystemic**	**Frequency**	**Average Weight**
15. Existence and value of relationship	0	0.00	22. Limits of stability, harmony, and durability	3	0.83
16. Value of bringing into relationship	2	0.87	23. Value of conflict leading to development	3	0.92
17. Critique of absence of holistic thinking	0	0.00	24. Value of developmental potential	8	0.63
18. Relate different values and judgments	4	0.81	25. Evaluative comparison of systems	0	0.00
19. Structural aspects of relationship	0	0.00	26. Process of coordinating systems	1	1.50
20. Patterns of interaction	4	0.44	27. Open, self-transforming systems	3	0.67
21. Constitutive, intrinsic relationships	0	0.00	28. Integration of multiple perspectives	1	0.25

Alice's data point to her as being a metasystemic thinker, which is evident in the high presence of transformational thought forms. She has a solid ability to see the big picture and

take multiple perspectives. She shows good coordination of process and metasystemic TFs, and thus her awareness of the world's constant motion and transformation seems to be well developed. Accordingly, she is able to see things as forms, as organized wholes, or as transformational systems in a process of unceasing transformation. Her cognitive behavior graph indicates imbalance in her ability to see things in context, particularly in the area of herself and her tasks. Apparent lack of context TFs and lower use of relationship TFs may inhibit her ability to see a system as being composed of interrelated parts and understand its internal structure. Although she is capable of grasping her professional environment as a living system, she may miss its full depth and complexity as rich in detail and invisible interconnections.

Table 4.35

Unweighted Utilization of Thought Forms: Alice

	Process	Context	Relationship	Metasystems
Unweighted utilization of DTFs per class	7/7	4/7	3/7	6/7
Total unweighted utilization of DTFs		20/28 x 100 = 71.42%		

Alice uses a relatively broad range of TFs (20 out of 28). Process TFs are expressed at a higher number and with higher weights (clarity of expression) in contrast to context and relationship TFs. Some guided practice of intentional use of context and relationship TFs could substantially increase clarity of interconnectedness of things in the world for Alice. Both her task house and her organizational house domains reveal a strong dominance of process and metasystemic thoughts, pointing to her stronger tendency toward critical as opposed to constructive thinking (i.e., 9 + 1.5 = 10.5 = critical; 1 + 3 = 4 = constructive).

TFs 3, 7, and 18 dominate Alice's thinking. She sees her reality as defined by opposing forces and recognizes their interdependence (3), is aware of continuous movement being

embedded in a larger process of change (7), and is able to relate different value and judgment systems (18). TF 20 occurred four times, but at a weight too low to be considered a large influence on her overall cognitive makeup.

Table 4.36

Alice's Cognitive Profile

Overall Dialectical Strength (DS)	DS = (18 + 2.75 + 6.75 + 14) = 41.50 / 84 x 100 = 49.40
Coordination Across Classes	P = 18/ 21 x 100 = 86; C = 2.75 / 21 x 100 = 13; R = 6.75 / 21 x 100 = 32; MS = 14 / 21 x 100 = 67
Systems Thinking Index	67
Discrepancy Index	(18 + 6.75) / (2.75 + 14) = (24.75 / 16.75) = 1.48

Alice's Fluidity Index of 41.50 indicates the high degree of her overall ability to think in complex terms. However, low utilization of context TFs contributes to her lower overall cognitive strength and possibly limits strengthening her constructive thinking.

It is interesting to see that Alice's Systems Thinking Index is so high in spite of her weak contextual thinking. It shows her ability to coordinate different aspects of reality (classes of thought forms) through strong use of most metasystemic thought forms.

A Discrepancy Index of 1.48 (24.75 / 16.75) reveals her inclination toward critical thinking. She focuses on motion, interactions, and what is emerging through unceasing change, but has a limited ability to combine this dynamic component with contextual thinking (seeing the value in a system organized in functions and structures) that appears as a static system to be able to move toward transformation. Paying more attention to contextual aspects of her environment may help increase Alice's effectiveness in transforming her organization.

Figure 4.7 shows Alice's mental space. It reveals the strength of her fluidity in the process and metasystemic domains and points out the areas suited for developmental intervention

(the context and relationship domains). The outer boundaries of the quadrant represent the total available space for expansion of Alice's current thinking.

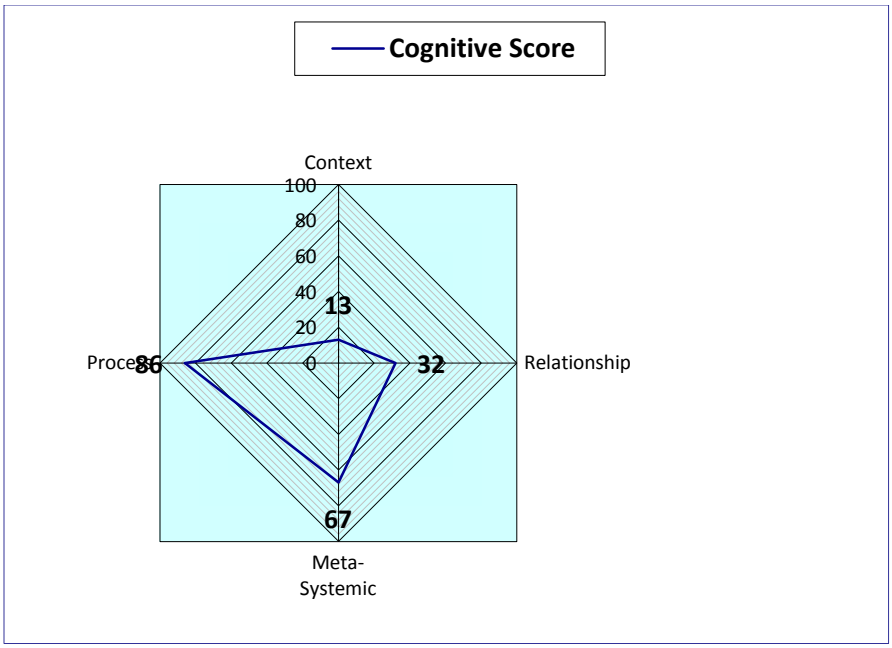


Figure 4.7. Map of Alice's cognitive profile.

Jack. Jack (age 45) is senior vice president for external manufacturing in a global pharmaceutical company. His organization owns many manufacturing plants, but they also work with multiple outside contractors. Jack is responsible for all outside manufacturing and the emerging markets his firm targets, which include Brazil, Russia, India, China, and others. A recent corporate initiative for dramatic growth over the next 5 years has dictated a completely different way of supplying for manufacturing. Jack is accountable for developing new strategies for supplying external manufacturers, as well as for developing structure and governance for newly forming emerging markets.

Jack describes his current work environment as a climate of hyper intensity. The company is trying to do more with less and they are changing everything about the way they operate; on top of this, they are merging with another large company. Deeply embedded in his

company's governance and operations, Jack points out the important aspect of his decision making role:

> One of the key things is it's very easy to make these decisions tactically, and you'll get your supply tactically in the short term. What's more important is to understand the environment, the business, where you want to end up in three, four, five years, so get clear on your intent, and then make sure that that guides your tactical decisions along the way.

Although Jack holds a high-ranking leadership position in his organization, he admits that organizational status does not affect him—he feels comfortable working at any level and is deeply interested in information, capabilities, and skills, and working with people who can make things happen. He describes himself as competitive, collaborative, transparent, and as having high standards and as someone who creates a learning environment and creates opportunities for his people to learn from their experiences. Jack elaborates on his interpretation of being collaborative:

> I'm very collaborative, but collaborative also means I'm happy to tell you I disagree, or I don't understand, and I'm also happy to say, "I have no idea; I'm not nearly smart enough to understand what you just said." . . . I challenge my boss just as much as I challenge my peers, just as much as I challenge people who work for me, and I expect them to do the same.

When discussing sponsorship, Jack differentiated sponsorship from a formal leadership position. He sees the role of a sponsor as much easier, yet more powerful, than leadership. He also emphasizes the importance of informal authority:

> Let's say I have 25 plants reporting to me, and I'm in charge of making sure that in my organization we implement the [company's] initiatives. . . . First of all, it's amazing how powerful sponsorship is, just little doses can have a big impact on people's motivation and direction. For example, we're implementing an initiative X; painful, difficult; they're having a 3-day meeting [in Europe] and I'm just calling in at the end of the meeting for 15 minutes to hear them read out, "Here's what we accomplished," and to give them my encouragement, and feedback; or at the beginning of the meeting to tell them how important this is, and why I think it's important, and what I expect them to do; little things like that have an amazing impact.

> Leadership, I think, is more about being able to create a vision, to be able to develop strategy, to be able to motivate and engage people. Sponsorship is more about once it's clear . . . what has to be done, having the courage and the energy to make it happen.
>
> I think another part of sponsorship is to be and fully feel accountable for the outcome—you can't delegate that—and [if] there are important risks that are not being mitigated you have to see to it that gets fixed even when it is not in your box. You have to make sure that all the things are in place for the initiative to realize its objectives. . . . For example, if an initiative doesn't have the right structure, whatever it is, a leader and a team and a clear charter and whatever, you can tell at the beginning it just ain't going to happen. We're all very busy, but to be a good sponsor . . . you need to take the time and energy to make sure [any problem] gets fixed.
>
> I guess I would say that the other thing is that formal authority is important, but I also think that you can do a lot through informal authority influencing, and I think sponsors have to do that as well, because many times they have to get other sponsors to do it.

Jack has a long track record of successfully sponsoring multiple change initiatives. He is currently leading several major transformational change projects, all of them in some way supporting the upcoming merger while growing business in emerging markets and changing the ways external manufacturing operates. Being able to interview Jack in the midst of his busiest time and observe him in action was a truly humbling experience. His cognitive profile reveals Jack's key qualities as a complex thinker capable of leading transformational change on such a large scale.

Table 4.37 represents the summary of Jack's cognitive profile. More detailed scores are explained in subsequent tables.

Table 4.37

Summary of Jack's Composite Cognitive Profile

Fluidity Index:	47
Dialectical Strength:	62.66
Frequency of TFs by Quadrant:	20, 10, 12, 17
Coordination of TFs:	84, 44, 43, 80
Utilization of TFs:	24 (85.71%)
Discrepancy Index:	1.02

Table 4.38

Jack's Cognitive-Behavior Graph

Bit #	Process	Context	Relationship	Metasystems
		Task House		
1	4 [.25]	10 [.5]	21 [.5]	
2	7 [.75]	8 [.75]		26 [.5]
3	4 [1] 5 [.5]			27 [.5]
4			15 [.25] 16 [.25] 18 [.25] 19 [1]	22 [1]
5	2 [.5] 4 [.5]			22 [.5]
6	4 [.25] 6 [.75]		16 [1]	
7			16 [.75]	
8			20 [.5]	23 [.5]
9	3 [1]			
10		8 [.5] 13 [1]		
11	4 [1.5]			
		Organizational House		
12		8 [1] 10 [2]		
13		8 [.5]		
14	4 [1]	12 [.5]		22 [.5]
15	5 [1.75]			
16				26 [3]
17			18 [1.5]	22 [.5] 25 [1]
18	3 [.25] 5 [1.25]	14 [1]		28 [.5]
19	2 [1]			22 [2]
20			15 [.5] 16 [.5]	22 [.5] 27 [1] 28 [1]
21	6 [.5]	12 [.5]		22 [.5]

		Self House		
22	7 [1.5]			24 [1]
23	5 [.5]			24 [.5]
24			18 [1]	
25	6 [.5] 7 [.5]			
	TOTAL: 15.75	TOTAL: 8.25	TOTAL: 8	TOTAL: 15

Jack's cognitive behavior graph indicates that 25 bits contained dialectical thought forms and were used for scoring. In this configuration, the maximum attainable score for this interview was 75 (25 bits x max weight of 3 points per bit).

Table 4.39

Frequencies and Average Weight of Individual Thought Forms: Jack

08 Jack					
Process	Frequency	Average Weight	Context	Frequency	Average Weight
1. Unceasing change	0	0.00	8. Parts within a whole	4	0.69
2. Preservative negation	2	0.75	9. Equilibrium of a whole	0	0.00
3. Interchange of opposites	2	0.63	10. Structures, functions, layers of the system	2	1.25
4. Patterns of interaction	6	0.75	11. Hierarchical nature of systems	0	0.00
5. Practical character of knowledge	4	1.00	12. Stability of system functioning	2	0.50
6. Critique of denying change	3	0.58	13. Frames of reference, traditions, ideologies	1	1.00
7. Embedding in process, movement	3	0.92	14. Multiplicity of contexts	1	1.00
Relationship	Frequency	Average Weight	Metasystemic	Frequency	Average Weight
15. Existence and value of relationship	2	0.38	22. Limits of stability, harmony, and durability	7	0.79
16. Value of bringing into relationship	4	0.63	23. Value of conflict leading to development	1	0.50

17. Critique of absence of holistic thinking	0	0.00	24. Value of developmental potential	2	0.75
18. Relate different values and judgments	3	0.92	25. Evaluative comparison of systems	1	1.00
19. Structural aspects of relationship	1	1.00	26. Process of coordinating systems	2	1.75
20. Patterns of interaction	1	0.50	27. Open, self-transforming systems	2	0.75
21. Constitutive, intrinsic relationships	1	0.50	28. Integration of multiple perspectives	2	0.75

Table 4.40

Unweighted Utilization of Thought Forms: Jack

	Process	Context	Relationship	Metasystems
Unweighted utilization of DTFs per class	6/7	5/7	6/7	7/7
Total unweighted utilization of DTFs	24/28 x 100 = 85.71%			

Similarly to Alice, Jack appears to be a strong transformational thinker, which is evident in the high presence of metasystemic thought forms supported by an equally strong process quadrant. His Fluidity Index of 47 indicates a high degree of overall ability to think in complex terms. More weight is given to processes and meta-systems than to relationships and context; thus, Jack exhibits an excellent ability to see change as a rule, not as an exception, and to take multiple perspectives. Accordingly, he is able to see things as forms, as organized wholes, or as transformational systems in a process of unceasing transformation. His task house domain reveals particularly well-balanced process and relationship TFs that add a dynamic component to his contextualized work environment, helping him to see things constructively and to develop metasystemic views. Context thought forms are weakly expressed relative to the other three quadrants. His organizational house domain shows a stronger presence of transformational

thoughts, pointing to a stronger tendency for constructive as opposed to critical thinking (i.e., 5.50 + 10.50 = 16 = constructive; 5.75 + 2.50 = 8.25 = critical).

Jack used a broad range of TFs in the interview (24 out of 28). Process and metasystemic TFs dominated his thinking. Some guided practice of intentional use of context and relationship TFs could substantially increase his understanding of structural aspects of his work environment and of interconnectedness of things in the world (people, things, or systems).

Based on Jack's data, it appears TFs 4, 5, 16, 22, and 26 occur more frequently and at a higher weight than others TFs. He is aware of patterns of ongoing interactions in processes (4); sees the practical and active character of knowledge (5); sees value in bringing into relationship seemingly unrelated parts or forms (16); understands limits of stability, balance, and durability of a system (22); and is capable of fully understanding and coordinating multiple systems (26).

Table 4.41

Jack's Cognitive Profile

Overall Dialectical Strength (DS)	DS = (15.75 + 8.25 + 8 + 15) = 47 / 75 x 100 = 62.66
Coordination Across Classes	P = 15.75/ 18.75 x 100 = 84; C = 8.25 / 18.75 x 100 = 44; R = 8 / 18.75 x 100 = 43; MS = 15 / 18.75 x 100 = 80
Systems Thinking Index	80
Discrepancy Index	(15.75 8) / (8.25 + 15) = (23.75 / 23.25) = 1.02

The Systems Thinking Index of 80 signifies Jack's exceptional ability to coordinate different aspects of reality (classes of thought forms). His use of metasystemic thought forms is well balanced in all three domains of his internal workplace, particularly in the organizational house. A Discrepancy Index of 1.02 (23.75 / 23.25) also implies Jack's exceptionally balanced constructive versus critical orientation, combining contextual thinking (seeing the value in systems organized in functions and structures) appearing as a static system, and adding a

dynamic component by focusing on motion, interactions, and what is emerging through unceasing change.

Jack's overall cognitive profile suggests he is a highly evolved conceptual thinker with a strong ability to express his thoughts with clarity and precision and coordinate them appropriately. His Dialectical Strength of 62.66 supports this observation. In terms of Basseches' (1984) phases of dialectical thinking, I believe Jack is in transition from phase 3 to phase 4. His Systems Thinking Index of 80 and Discrepancy Index of 1.02 show an almost ideal balance between critical and constructive thinking and support the notion of Jack being a phase 4 fully developed dialectical thinker. However, a relatively weaker context quadrant and a particularly weaker relationship quadrant have an impact on his uneven Coordination Across Classes, which leads to the conclusion that Jack has not yet left phase 3. Nevertheless, after careful scrutiny of various parts of Jack's profile, it is important to return to his overall profile and notice how these individual scores, when combined together, support my belief that it is just a matter of time and some reflective practice for Jack to reach the fourth phase of dialectical thinking.

Figure 4.8 shows Jack's mental space and clearly delineates avenues for further growth—expanding the context and relationship thinking.

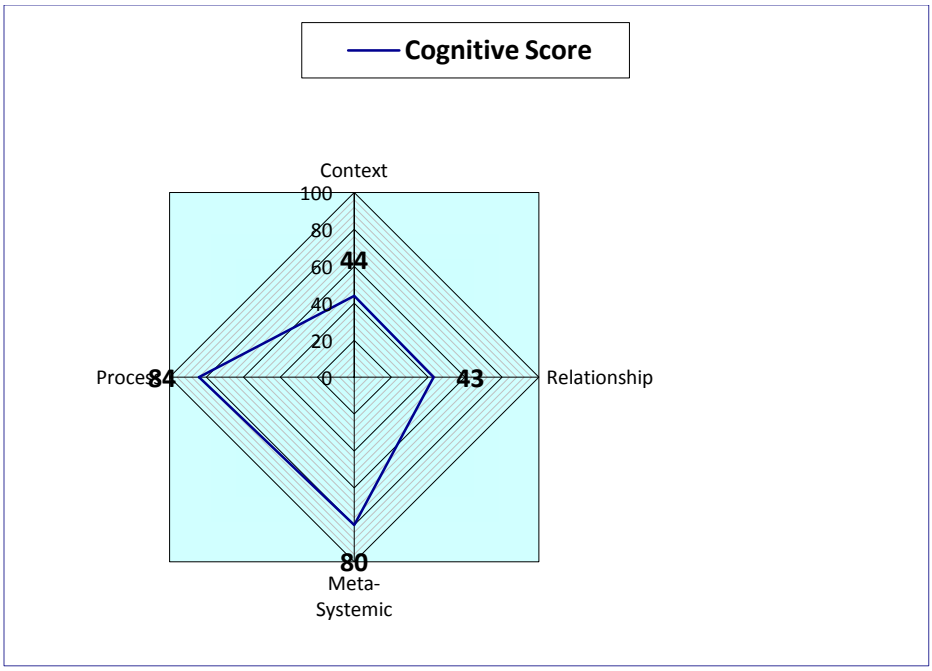


Figure 4.8. Map of Jack's cognitive profile.

Michael. Michael (age 50) is the chief operating officer of a global pharmaceutical company and is responsible for all of the revenue-generating activities in the business. These activities are organized around strategic business units whose leaders are accountable to Michael for the performance of their units. Ultimately, he has decision making responsibility for all strategic planning decisions, all major spending decisions, and all major hiring decisions.

Michael described his multicultural organization as extraordinarily complicated due to its global presence coupled with a regulatory overlay that differs in various parts of the world. The company operates in an industry where the actual work product varies to some degree from region to region based on different rules, laws, regulations, and so forth, but, as Michael says:

> We have the complexity of running what are typically global programs, meaning that when they run a clinical trial of a drug, they usually run a program in many countries around the world [with] the complexity of managing a team, and these are not simple projects; these are complicated projects that involve, in many cases, thousands of people around the world, and being able to coordinate that from a management standpoint, insure that we operate both in a way that complies with the regulations, as well as in a way that is efficient and makes money for our shareholders, is very, very complicated.

The interview with Michael provided me with an opportunity to observe dialectical thinking at its best. Although the interview lasted only 45 minutes, Michael demonstrated a high degree of explicitness and extensive use of individual thought forms. When responding to my question about his views of sponsorship, Michael used several thought forms. For example, he sees the role of a sponsor in terms of thought form 1 (unceasing change) and then puts the thought form in a systemic context (22). He then proceeded to bring up the risk of reductionism that exists if a person ignores the common ground between the rational, logical, and emotional sides of change (TFs 17 and 18):

> Well, I think, first of all . . . your role as a sponsor evolves. As a change initiative progresses, it goes through different stages, and I think that your role as a sponsor evolves with those different stages. Certainly, at the beginning of launching an initiative, one of the key roles as the sponsor is to develop the case for the need for change, and to define what the burning platform really is, and be in a position to be persuasive that we really do have a burning platform, and that we have no choice as an organization other than to go down a path of change, irrespective of whether that is viewed as attractive, or appealing, or not. Whether that's viewed as something that we want to do, or have time to do, or whatnot, it really has to be viewed by the organization as almost a survival imperative.
>
> If you don't bring that sense of urgency to the initiation of the change event, I think it's very hard to get it off the ground. And that requires a combination of both a rational and logical analytic approach to making the case for change. But I think what's somewhat different here, particularly as it relates to day-to-day operational issues, is you also have to really appeal to people's emotional side. You are really trying to get people to buy into a concept that's going to be hard; it's going to be difficult; it's going to require doing things that are not necessarily attractive, or things that people might not otherwise opt to do, and if people don't buy into this, then it becomes a real challenge. To try and make that case on a purely rational basis, without engaging people emotionally, I think, it's very hard to be successful. And so I give that more thought in the context of driving change than I might on the day-to-day basis of managing the P&L of a business.

Michael continues:

> I think many managers think, well, if the manager tells people what to do they'll do it, but the challenge is when you're trying to make a cultural change, you cannot do this by sending out e-mails; you can't do this by doing webcasts; you can't do this by traveling around the world and standing in front of rooms of people, because that's only one small part of the process. It's something that has to be reinforced all the time, every day, where

> each and every person in the organization is holding other people in the organization accountable for seeing the initiative through to realization, and the only way you can achieve that is by creating these cascades of communication and these networks. You can't do it in a purely top-down way. It's very easy to get your management team on board. That's not a problem. It's getting the other 10,000 people.

Michael has initiated and sponsored a number of systems and process changes designed to develop the company's organizational culture so that it is capable of keeping up with the rapid changes in the marketplace. The nature of the highly regulated pharmaceutical industry combined with his company's global presence makes it very challenging to implement changes and to continue to meet the needs of the market and stay ahead of the competition. So far, in his role of an initiating sponsor, Michael has demonstrated he is up to the challenge many times.

Table 4.42 represents the summary of Michael's cognitive profile. More detailed scores are explained in subsequent tables.

Table 4.42

Summary of Michael's Composite Cognitive Profile

Fluidity Index:	54.50
Dialectical Strength:	72.66
Frequency of TFs by Quadrant:	8, 9, 14, 13
Coordination of TFs:	51, 59, 85, 96
Utilization of TFs:	23 (82.14%)
Discrepancy Index:	.88

Table 4.43

Michael's Cognitive-Behavior Graph

Bit #	Process	Context	Relationship	Metasystems
		Task House		
1		9 [.5] 10 [.5]		
2	7 [1]		20 [1]	
3	4 [1]	14 [1.5]		

	7 [.5]			
4	5 [2]		16 [1]	
5	6 [1]		17 [.5]	
6			16 [1.5] 17 [.5]	
7			19 [1.5] 20 [.5]	
8	1 [1.5]			22 [.5] 24 [.5]
9			17 [1.5] 18 [1.5]	
10	6 [1.5]			22 [.5]
11	3 [1]	11 [1]	20 [1]	
12				28 [.5]
13		12 [1.5]		22 [1.5]
14				27 [2]
		Organizational House		
15				26 [3]
16		10 [1]		
17		8 [1]	16 [1]	28 [1]
18		12 [2]		
19			21 [2.5]	
20				28 [3]
21				27 [2]
		Self House		
22			21 [1.5]	
23		14 [2]		
24			20 [.5]	24 [1.5]
25				24 [1.5] 27 [.5]
	TOTAL: 9.5	TOTAL: 11	TOTAL: 16	TOTAL: 18

Michael's cognitive behavior graph indicates that 25 bits contained dialectical thought forms and were used for scoring. In this configuration, the maximum attainable score for this interview was 75 (25 bits x max weight of 3 points per bit).

Table 4.44

Frequencies and Average Weight of Individual Thought Forms: Michael

09 Michael

Process	Frequency	Average Weight	Context	Frequency	Average Weight
1. Unceasing change	1	1.50	8. Parts within a whole	1	1.00
2. Preservative negation	0	0.00	9. Equilibrium of a whole	1	0.50
3. Interchange of opposites	1	1.00	10. Structures, functions, layers of the system	2	0.75
4. Patterns of interaction	1	1.00	11. Hierarchical nature of systems	1	1.00
5. Practical character of knowledge	1	2.00	12. Stability of system functioning	2	1.75
6. Critique of denying change	2	1.25	13. Frames of reference, traditions, ideologies	0	0.00
7. Embedding in process, movement	2	0.75	14. Multiplicity of contexts	2	1.75
Relationship	**Frequency**	**Average Weight**	**Metasystemic**	**Frequency**	**Average Weight**
15. Existence and value of relationship	0	0.00	22. Limits of stability, harmony, and durability	3	0.83
16. Value of bringing into relationship	3	1.17	23. Value of conflict leading to development	0	0.00
17. Critique of absence of holistic thinking	3	0.83	24. Value of developmental potential	3	1.17
18. Relate different values and judgments	1	1.50	25. Evaluative comparison of systems	0	0.00
19. Structural aspects of relationship	1	1.50	26. Process of coordinating systems	1	3.00
20. Patterns of interaction	4	0.75	27. Open, self-transforming systems	3	1.50
21. Constitutive, intrinsic relationships	2	2.00	28. Integration of multiple perspectives	3	1.50

Table 4.45

Unweighted Utilization of Thought Forms: Michael

	Process	Context	Relationship	Metasystems
Unweighted utilization of DTFs per class	6/7	6/7	6/7	5/7
Total unweighted utilization of DTFs		23 / 28 x 100 = 82.14%		

Michael exhibits a strong ability for transformational thinking, as evident in the high presence of metasystemic TFs combined with a well-balanced coordination of TFs across the other three quadrants. He uses a broad range of TFs (23 out of 28) at a relatively high weight, which contributes to his exceptionally high Dialectical Strength score. For example, although Michael used fewer than seven metasystemic thought forms in the interview, the degree of explicitness with which Michael expressed his thoughts was so high that the overall weight accounts for the overall high Dialectical Strength score and Systems Thinking Index.

Relationship and metasystemic TFs dominate Michael's thinking. While his task house domain is well balanced in terms of coordination of TFs, the organizational house and self house domains reveal the absence of process TFs. Further, his organizational house domain shows a strong presence of metasystemic thoughts, pointing to his stronger tendency for constructive as opposed to critical thinking (i.e., 4 + 9 = 13 = constructive; 0 + 3.50 = 3.5 = critical).

Another differentiating factor in Michael's profile is his even utilization of thought forms. There is no single TF that stands out as occurring more than the others. However, there is a constellation of thought forms expressed at a higher than average weight. Michael was particularly explicit in describing the stability of system functioning (12); expressing awareness of multiple contexts (14); seeing the value of relatedness (16); pointing out constitutive

relationships (21); understanding open, self-transforming systems (27); and integration of multiple perspectives in order to define complex realities (28).

Table 4.46

Michael's Cognitive Profile

Overall Dialectical Strength (DS)	DS = (9.5 + 11 + 16 + 18) = 54.50 / 75 x 100 = 72.66
Coordination Across Classes	P = 9.5/ 18.75 x 100 = 51; C = 11 / 18.75 x 100 = 59; R = 16 / 18.75 x 100 = 85; MS = 18/ 18.75 x 100 = 96
Systems Thinking Index	96
Discrepancy Index	(9.5 + 16) / (11 + 18) = (25.5 / 29) = .88

Michael's profile exemplifies a phase 4, fully developed dialectical thinker, as evidenced by an exceptionally high Fluidity Index of 54.50 and a cognitive strength of 72.66. He is a balanced thinker with good coordination of TFs across all four quadrants. Michael's profile reveals his key strength, something that no other participant has achieved—a Systems Thinking Index of 96. This high number (relative to the total attainable score of 100) signals Michael's high degree of metasystemic thinking as well as his ability to express his thoughts with great clarity and precision. A Discrepancy Index of .88 (25.5 / 29) indicates that his constructive and critical orientations are in balance, with a slight preference toward constructive thinking.

Figure 4.9 shows Michael's mental space. The blue lines represent his current degree of dialectical thinking as seen in the number of thought forms and their coordination across the four classes. It also reveals the strength of his fluidity in the relationship and metasystemic domains. With Michael's cognitive scores, the total available space for expansion of his current thinking is relatively small. He may benefit from practicing more intentional use of process and context TFs.

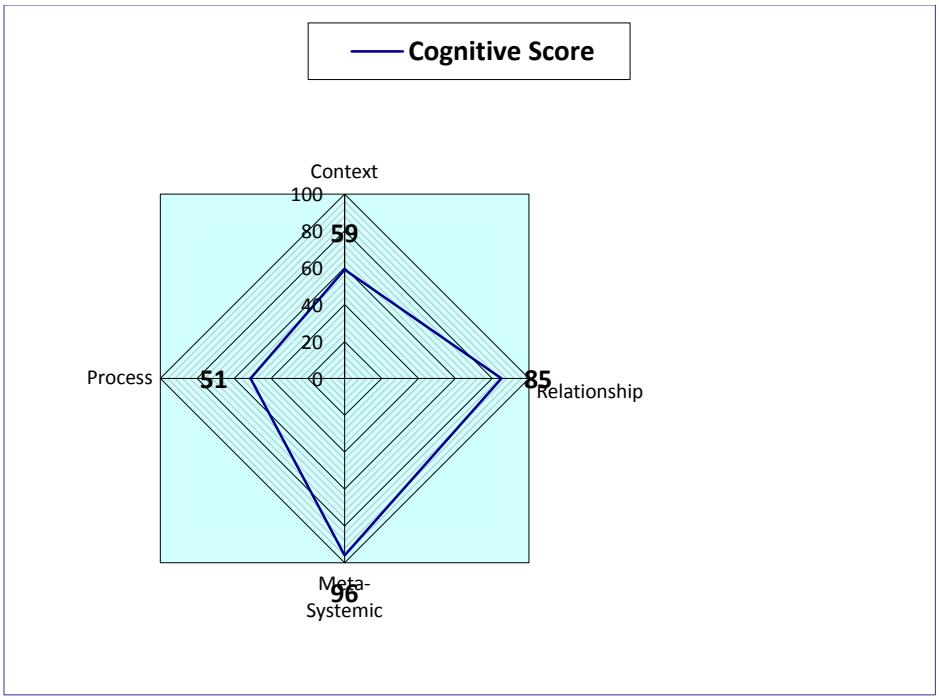


Figure 4.9. Map of Michael's cognitive profile.

Cynthia. Cynthia (age 52) is president and CEO of a public sector organization responsible for property assessments in a Canadian province. The organization was created in 1974 at a time when the nation's property assessment system was not in very good shape as a result of intensified inequities in how property taxes were levied. The Canadian government assembled an all-party legislative committee to find a solution and their solution was to create a province-wide organization that was independent of taxing authorities and had the responsibility to create an assessment role. Cynthia is responsible for the overall organization of about 650 staff members in 17 locations throughout the province operating with a budget of about $81 million. Her executive team consists of six vice presidents who oversee all of the operational areas within the organization. Cynthia reports to a board of directors whose members are appointed by a minister.

Cynthia considers relationship building and communication the most important aspects of her job. Operating in a political environment calls for maintaining close relationships with the

board and with the ministry. Clear communication, according to her, is critical, especially when something her organization does may become a political issue. Another important aspect for Cynthia is to have a very high-functioning executive team built primarily on trust, so she insists on having the team spend as much time together as circumstances allow. Dedicating time and resources to executive development is one of Cynthia's top priorities. Her relationship with staff is equally important, so she spends a fair amount of time visiting offices throughout the province to have face-to-face communication with every department at headquarters, as well as with all of her field offices.

Cynthia attributes her organization's strength to the strong partnerships they have built with customers and other constituents. She makes personal efforts to ensure strong partnerships and those then ripple through the organization. Even when we discussed various processes, such as decision making, Cynthia reiterated her emphasis on open communication with the board and her employees as her key strategy for moving the organization forward. She takes pride in creating a pleasant and supportive work environment where people enjoy coming to work and are eager to accomplish great things. She motivates her employees by explaining how each person's job is a part of something bigger:

> We're all here to be doing things to make everyone's experience better. What I try to do in talking to the staff is I try and tie in our work to its importance in society.
>
> And what we do is we create a tax base. And that tax base is used to raise $6 billion every year for our province. And that money is spent to build schools, to provide teachers, to provide police services, to build recreation centers, to build homes for homeless—I mean, there's all kinds of ways that money is used. So I really try, for our staff, to draw that link for them so that they feel like they're part of something good. And what we say is that what we do is we help to build communities in our work.

Cynthia enjoys being the CEO because, she says, she finds it easier to make change from this position. She is currently sponsoring a culture change—considered one of the most challenging of all large-scale transformational changes. The organization is fundamentally

reinventing the way it does its work to become more responsive to customers' needs and to introduce more fluidity into the project-based environment. They are also introducing major changes in hiring and promotion procedures, putting more emphasis on leadership competencies than on technical skills at every level of the organization, and promoting skilled use of advanced technology.

Cynthia views sponsorship and leadership as two integral pieces of change. Leadership is related to structures and projects, while sponsorship is more about inspiration and pushing the edges.

> [Leadership] is kind of building the framework . . . you've got to have good communication, you've got to have good structured project management, you've got to have good planning, you've got to have good, solid budgets that support those plans. You've got to have the right people with the right skills. I mean, all those things have to be in place. To me, that's what the leader's got to do.
>
> The sponsor is . . . what I would describe as more of a role about inspiration. So to me, it is more painting the picture, pushing the edges. "What could this look like? What are the possibilities?" And it's not always a place of comfort, right? It can be a place of discomfort. Where, on the one part, you're sort of pushing out and describing the future; on the other part, you're saying, "Guess what? We can't stay still because we're adding 35,000 properties to our work every year and we're not getting more staff." So you have to sort of take the pain of staying in the same spot.

Cynthia's dedication to her work was felt throughout the interview. She summarized her stance toward change as her intrinsic motivation for the common good. "As long as I have a career where I can always be pushing myself out of my comfort zone and making changes that improve the lives of other people, I'll be happy."

Table 4.47 represents the summary of Cynthia's cognitive profile. More detailed scores are explained in subsequent tables.

Table 4.47

Summary of Cynthia's Composite Cognitive Profile

Fluidity Index:	49.00
Dialectical Strength:	62.82
Frequency of TFs by Quadrant:	15, 11, 15, 13
Coordination of TFs:	62, 51, 70, 68
Utilization of TFs:	26 (92.86%)
Discrepancy Index:	1.11

Table 4.48

Cynthia's Cognitive Behavior Profile

Bit #	Process	Context	Relationship	Metaystems
		<u>Task House</u>		
1		8 [.5] 10 [.5]		
2	7 [.75]		20 [.25]	
3	4 [.5] 7 [.5]	14 [.5]		
4	7 [.5]			24 [.5]
5		8 [.75]		
6			16 [1] 21 [.25]	
7	4 [.75]		20 [.5]	
8			20 [2]	
9		12 [1.5]		22 [1]
10				23 [1.5] 24 [1]
11	7 [.75]	9 [.75]		
12			15 [1] 16 [.75]	24 [.5]
		<u>Organizational House</u>		
13	2 [1.5]			
14	4 [1]		20 [1]	
15			19 [1.5]	
16			16 [1.5] 17 [1]	
17	4 [.5]	10 [2]		

18		11 [.5]	15 [.5]	22 [.5] 24 [1.5]
19			16 [1.5]	26 [1]
20	5 [1.5]	14 [1.5]		
21	1 [.5] 2 [.75]	11 [.5]		27 [1.25]
22	3 [1]			26 [1]
23				28 [.5] 25 [2]
		Self House		
24			16 [.5] 18 [.5]	
25	7 [1]			24 [.5]
26	7 [.5]	11 [1]		
	TOTAL: 12	TOTAL: 10	TOTAL: 13.75	TOTAL: 13.25

Cynthia's cognitive behavior graph indicates that 26 bits contained dialectical thought forms and were used for scoring. In this configuration, the maximum attainable score for this interview was 78 (26 bits x max weight of 3 points per bit).

Table 4.49

Frequencies and Average Weight of Individual Thought Forms: Cynthia

10 Cynthia

Process	Frequency	Average Weight	Context	Frequency	Average Weight
1. Unceasing change	1	0.50	8. Parts within a whole	2	0.63
2. Preservative negation	2	1.13	9. Equilibrium of a whole	1	0.75
3. Interchange of opposites	1	1.00	10. Structures, functions, layers of the system	2	1.25
4. Patterns of interaction	4	0.69	11. Hierarchical nature of systems	3	0.67
5. Practical character of knowledge	1	1.50	12. Stability of system functioning	1	1.50
6. Critique of denying change	0	0.00	13. Frames of reference, traditions,	0	0.00

			ideologies		
7. Embedding in process, movement	6	0.67	14. Multiplicity of contexts	2	1.00
Relationship	Frequency	Average Weight	Metasystemic	Frequency	Average Weight
15. Existence and value of relationship	2	0.75	22. Limits of stability, harmony, and durability	2	0.75
16. Value of bringing into relationship	5	1.05	23. Value of conflict leading to development	1	1.50
17. Critique of absence of holistic thinking	1	1.00	24. Value of developmental potential	5	0.80
18. Relate different values and judgments	1	0.50	25. Evaluative comparison of systems	1	2.00
19. Structural aspects of relationship	1	1.50	26. Process of coordinating systems	2	1.00
20. Patterns of interaction	4	0.94	27. Open, self-transforming systems	1	1.25
21. Constitutive, intrinsic relationships	1	0.25	28. Integration of multiple perspectives	1	0.50

Table 4.50

Unweighted Utilization of Thought Forms: Cynthia

	Process	Context	Relationship	Metasystems
Unweighted utilization of DTFs per class	6/7	6/7	7/7	7/7
Total unweighted utilization of DTFs	26 / 28 x 100 = 92.86%			

Cynthia's profile reveals the most balanced dialectical thinker among all 10 participants. Her unusually high numbers of utilized thought forms are so evenly distributed across the four quadrants that her profile became an outlier in the research sample. In line with the nine other participants, Cynthia is a strong metasystemic thinker who has an excellent ability to see the big picture and take multiple perspectives, which is evident in her use of all seven metasystemic thought forms. Accordingly, she is able to see things as forms, as organized wholes, or as

transformational systems being composed of interrelated parts and being in a process of unceasing transformation.

Cynthia uses an unusually broad range of TFs (26 out of 28). TFs 4, 7, 20, and 24 are used more frequently than any others, implying a specific constellation that may contribute to her ability to view her workplace metasystemically. For example, Cynthia is aware of the interactive nature of relationships and can identify patterns both in processes (4) and in relationships (20). She also treats events and situations as parts of the larger processes in which those events are embedded and gives them either developmental or historical explanation (7). By being able to use those three TFs, she is capable of recognizing and valuing developmental movements that lead to a new level of functioning, greater inclusiveness, and higher balance (24). At numerous times during our interview, Cynthia demonstrated a high degree of fluidity in her thinking across three quadrants by effortlessly connecting thoughts, concepts, and ideas together, and finishing her train of thought with a synthesis pertaining to the system in which she is embedded.

Table 4.51

Cynthia's Cognitive Profile

Overall Dialectical Strength (DS)	DS = (12 + 10 + 13.75 + 13.25) = 49 / 78 x 100 = 62.82
Coordination Across Classes	P = 12/ 19.50 x 100 = 62; C = 10 / 19.50 x 100 = 51; R = 13.50 / 19.50 x 100 = 70; MS = 13.25/ 19.50 x 100 = 68
Systems Thinking Index	68
Discrepancy Index	(12 +13.75) / (10 + 13.25) = (25.75 / 23.25) = 1.11

Cynthia's Systems Thinking Index of 69 implies her strong ability to coordinate different aspects of reality (classes of thought forms). Her use of metasystemic TFs is exceptionally strong and well balanced in all three domains of her internal workplace, particularly in the organizational house.

A Discrepancy Index of 1.11 (25.75 / 23.25) portrays Cynthia as a balanced constructive and critical thinker who is able to add the dynamic components of ongoing process and interactions to her contextual thinking (seeing the value in systems organized in functions and structures). It enables her to critically examine her environment, while constructing new realities.

Figure 4.10 shows Cynthia's mental space. Her avenues for further growth lie in further expanding the context thinking and increasing explicitness of her existing thought forms, both of which would help expand the boundaries of her current mental space.

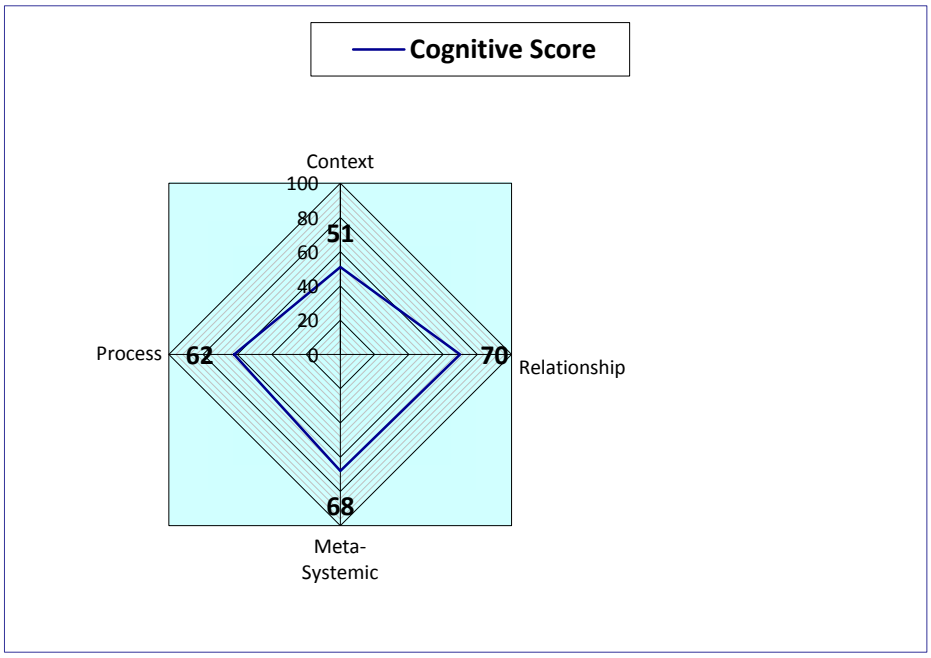


Figure 4.10. Map of Cynthia's cognitive profile.

Analysis of Common Themes and Patterns

The focus of this research was the use of the dialectical thought form framework to interpret the transcripts of interviews with 10 senior executives in a role as sponsor of transformational change in their respective organizations. The most striking results in this

research show that all 10 participants were strong dialectical thinkers who used a broad range of dialectical thought forms with a high degree of coordination. However, the individual configuration of composite profiles varied greatly. As the cognitive graphs illustrate, all participants shared some common qualities, yet each participant's patterned movement in thinking was unique and qualitatively different.

As shown in Table 4.52, there is no highest, best, or strongest score. Each person exhibited strength in some aspects of the profile and showed less development in other areas. For example, James' interview generated the highest number of scorable bits, Richard used the highest number of relationship thought forms, Andrew's use of metasystemic thought forms exceeded a standard theoretical threshold of 100, Michelle's profile did not show any less-developed capabilities in spite of her relatively young age (37), and Ted used the highest number of context thought forms, followed by Alice, whose strength lay in the process class of thought forms. Additionally, Jack's exhibition of the most evenly balanced mix of critical and constructive thinking, Michael's remarkable ability to express thought forms with clarity and depth, and Cynthia's and James' high utilization of thought forms in a highly balanced fashion across all four quadrants are examples of some aspect of individual cognitive strength.

At the same time, Andrew's high use of metasystemic thought forms without a sufficiently explicated relationship quadrant led to a high discrepancy between critical and constructive thinking and James' high number of scorable bits in which the thought forms were merely present but expressed in insufficient depth led to a lowering of his overall cognitive strength. Alice's process orientation without sufficient context prevented her from developing a more constructive orientation. These indicators point to the richness and depth of individual profiles.

I believe the strength of each individual, stemming from a variety of attributes viewed holistically, contributes to a sponsor's effectiveness. What appears as a weakness points to areas suitable for further development rather than inhibitors to the practice of good sponsorship.

Each participant used a different constellation of individual TFs that, when combined, dominated his or her thinking, as evident in the 10 individual tables labeled *Frequencies and Average Weight of Individual Thought Forms.* Yet, despite the differences in these constellations, the patterns help illuminate invisible dimensions that lead to the development of metasystemic thinking. Table 4.52 illustrates aggregate profiles of the entire group expressed in numbers. As explained in chapter 3, the numbers have no statistical significance—their purpose is only to scale participants so I can compare them one to another in terms of overall Dialectical Strength.

Table 4.52

Aggregate Cognitive Profiles for All Participants

Alias	Fluidity Index	Dialectical Strength / no. of bits	Unweighted Utilization of TFs	Coordination	Systems Thinking Index	Discrep-ancy Index
Robert	8.50+8.25+13.25+16.25 = 46.25	57.09 (27)	89.28%	42, 41, 65; 80	80	0.89
James	11.25+11.00 +16.5+11.5 = 50.25	47.85 (35)	96.42%	43, 42, 63; 44	44	1.23
Richard	8.50+10.50+22.50+20.75 = 62.25	62.88 (33)	85.71%	34, 42, 91; 84	84	0.99
Andrew	10.00+10.25+6.50+24.75 = 51.50	61.30 (28)	85.71%	48, 49, 31; 118	118	0.47
Michelle	10.50+10.50+8.25+13.25 = 42.50	48.85 (29)	82.14%	48, 48, 38; 61	61	0.79
Ted	12.00+11.50+7.25+12.00 = 42.75	49.13 (29)	78.57%	55, 53, 33; 55	55	0.82
Alice	18.00+2.75+6.75+14.00 = 41.50	49.40 (28)	71.42%	86, 13, 32; 67	67	1.48
Jack	15.75+8.25+8.00+15.00 = 47.00	62.66 (25)	85.71%	84, 44, 43; 80	80	1.02
Michael	9.50+11.00+16.00+18.00 = 54.50	72.66 (25)	82.14%	51, 59, 85; 96	96	0.88
Cynthia	12+10+13.75+13.25 = 49.00	62.82 (26)	92.86%	62, 51, 70: 68	68	1.11

To a trained scorer, Table 4.52 reveals a wealth of information about a person's dialectical profile in terms of strengths and weaknesses, but it also points out directions for possible further development of each participant. For illustration, let us compare James and Michael. They both have a relatively high Fluidity Index (total sum of weighted thought forms used) and almost identical utilization of thought forms. Yet, Michael's Dialectical Strength (DS)

of 72.66 is almost twice James' DS of 47.85. What accounts for the difference is the weight, or degree of elaboration in their use of the thought forms. James' interview transcript generated 35 bits, while Michael's generated 25 bits. James' use of thought forms was more frequent, but at a lower weight than Michael's, who used fewer thought forms and deployed them less often, but with a higher degree of clarity and elaboration. Consequently, James' developmental needs would focus on learning how to use the existing thought forms in a more elaborate fashion, rather than merely pointing to them; while Michael's developmental focus would probably be on including additional thought forms within his existing cognitive framework.

Unweighted utilization of thought forms. According to Laske (2009), the more thought forms we are able to use, the better able we are to deal with complexity. All 10 participants used a broad repertoire or high percentage of possible thought forms (between 20 and 26 out of 28 thought forms, or from 71% to 93 %). Thus, the data in Table 4.53 suggest all participants have a well developed ability to deal with complexity.

Table 4.53

Unweighted Utilization of Thought Forms for All Participants

Alias	P	C	R	MS	Total	%
Robert	7	5	6	7	25	25/28 x 100 = 89.28%
James	7	7	7	6	27	27/28 x 100 = 96.42%
Richard	5	6	7	6	24	24/28 x 100 = 85.71%
Andrew	6	6	5	7	24	24/28 x 100 = 85.71%
Michelle	6	6	5	6	23	23/28 x 100 = 82.14%
Ted	4	6	5	7	22	22/28 x 100 = 78.57%
Alice	7	4	3	6	20	20/28 x 100 = 71.42%
Jack	6	5	6	7	24	24/28 x 100 = 85.71%
Michael	6	6	6	5	23	23/28 x 100 = 82.14%
Cynthia	6	6	7	7	26	26/28 x 100 = 92.86%

Coordination of thought forms. Although the dominant quadrant of thought forms may be different from one participant to another, it does not affect the participants' ability to think dialectically. For example, Robert, Andrew, Michael, and Cynthia focus attention on different aspects of the real world primarily through metasystemic thought forms; while for James and Richard, it is the relationship aspect; or for Alice and Ted, the process aspect. Some very clear patterns emerged in analysis of the entire group and these observations are discussed in more detail in the "Emerging Patterns" section below.

Systems Thinking Index. The Systems Thinking Index measures the degree to which one is capable of using metasystemic thought forms. In dialectical thinking, certain TFs presuppose other TFs, and this is particularly important when using metasystemic TFs. According to Laske (2009):

> The transformational system [metasystemic] Quadrant is always already an integral part of the other three meant to illuminate it. In fact, there is nothing to illuminate without the fourth Quadrant. It is just not apparent yet. In this sense, the fourth Quadrant holds the classes of thought forms together as a [living] *system*. Their transformational nature lies in the fact that ultimately transformation is possible only in a *system of Quadrants*, not in a single Quadrant. This is so since transformation is rooted in constitutive relationships (articulated by TF #21). (p. 551)

In other words, it is not possible to think transformationally unless one is capable of using process, context, and relationship TFs. The Systems Thinking Index for all 10 participants indicates a high use of metasystemic TFs, both in terms of the number of occurrences and their respective weights (five participants used all seven, four participants used six TFs, and one participants used only five metasystemic TFs).

Discrepancy between critical and constructive thinking. Most participants exhibited a fairly high degree of critical thinking (evident in the process and relationship quadrants). The wide span of Discrepancy Index scores indicates various degrees of balance between constructive and critical thinking (scores above 1 indicate stronger critical thinking and scores below 1 indicate stronger constructive thinking). For example, Jack emerged as the most equilibrated thinker, while Andrew appeared to be highly imbalanced in terms of having a strong constructive orientation while neglecting the critical orientation. Yet, they are both highly effective as sponsors, which makes me think Andrew's exceptional ability to think metasystemically may have alleviated the apparently weaker relationship orientation that contributed to the discrepancy.

Value statements. One of the distinguishing qualities of dialectical thinking is the explicit expression of value statements as opposed to empirical statements (Basseches, 1984). McIntosh (2010) spoke of the influence of values on consciousness, as they serve to pull evolution forward by attracting the choices of consciousness. In Laske's (2009) TF framework, axiological (value-focused) TFs are 6, 17, 23, and 24, all of them addressing some aspect of the valuing of system transformation. In this study, each participant used at least three of the value-focused TFs and all 10 participants expressed TF 24 (valuing movement in a developmental direction), something seldom seen in non-dialectical thinkers. Here is an example of the explicit

use of TF 23—the speaker describes the value of conflict leading to a higher level of system functioning:

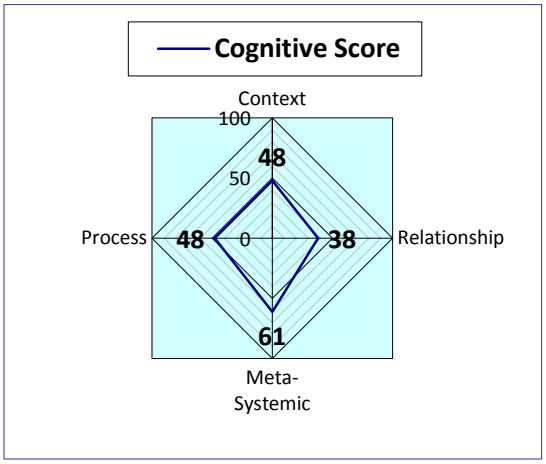
> At the first two quarterly operations review meetings I got a lot of people saying, "A waste of time; why am I here?" "What do you want from me? I should be back at my plant doing work." "Why do I care what a plant in California is doing? I've got my own problems, and I need . . .". All of that came up. We're now coming up on our fourth one, and actually now our legacy plant is leading the next one, because they said, "Boy, I've seen the value I've gotten." So, our sponsorship is not only setting the strategic intent, but it's also to me about showing some quick wins, where people can sit there and go, "Ah, I see value here. I see the benefit. I can see what's in it for me," and you start to get the flywheel effect going, so there was a lot of company culture differences between us being more of an entrepreneurial spirit, and the parent company being more of a very long-established, more of a bureaucratic-type environment.

Common patterns. Further scrutiny of individual graphs revealed some relatively clear emerging patterns and commonalities among participants. Two distinct groups of four participants sharing similar patterns emerged, as well as two outliers. For example, while all 10 participants demonstrated exceptionally high use of metasystemic thought forms, each participant is particularly strong in thinking in at least one other quadrant.

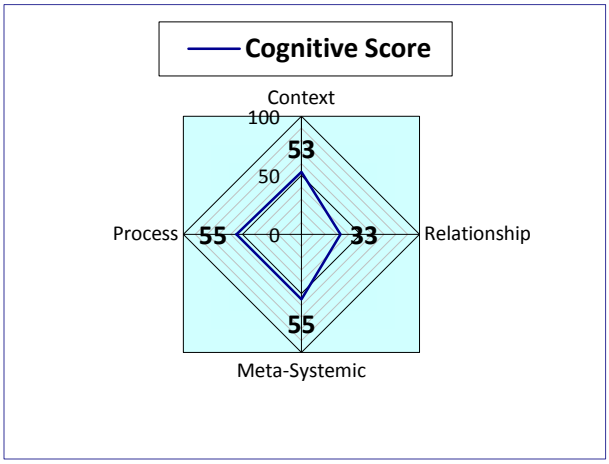
The first group of four participants is particularly strong in the metasystemic form of cognitive organization combined with a strong orientation toward process. The second group is even stronger in the metasystemic form of organization combined with the relationship quadrant. The two outliers are Cynthia, whose profile reflects exceptional balance among all four quadrants, and Andrew, whose profile is unusually unbalanced due to his high use of metasystemic thought forms.

Group 1. All four profiles in the first group (Michelle, Ted, Jack, and Alice) show a similar pattern—for this group, the focus of attention is on processes (see Figures 4.5, 4.6, 4.7, and 4.8).

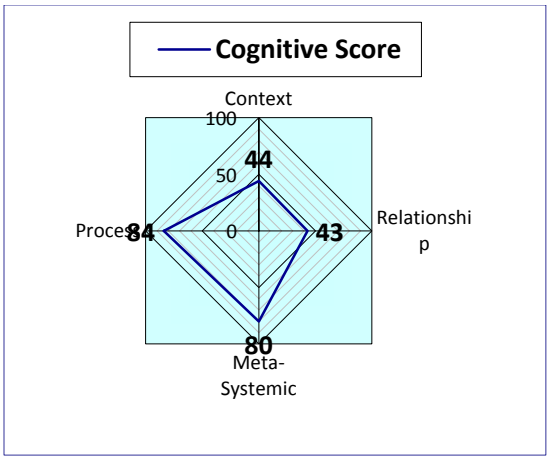
Michelle: Senior Executive



Ted: Senior Executive



Jack: Senior Executive



Alice: President and CEO

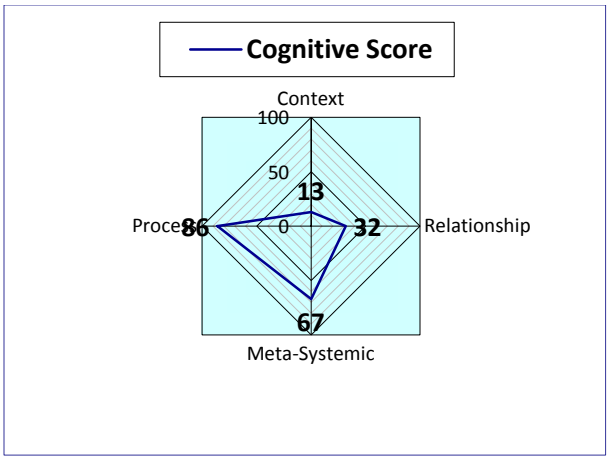


Figure 4.11. Profiles of group 1.

The function of process thought forms, according to Laske (2009), is to:

> Make a thinker aware of the pervasive presence or absences or negativity in what exists; draw a thinker's attention to processes of change, or to creative processes which allow for the possibility of change; point a thinker to the fact that what exists is always embedded in larger change processes; describe moves in thought in which processes of change are characterized in dialectical terms, that is, as processes with a tendency toward genuine development or reversal; and instill and preserve fluidity in thought. (p. 461)

By exhibiting a strong use of process thought forms, these four individuals exemplify a transformational leader who is keenly aware of change being an ongoing process and not an isolated event. Such a person also understands that what exists is always embedded in a larger

process and, as in the cases of Michelle and Ted, in a larger context. They recognize and appreciate knowledge for its practical value (seen in their talent for successful implementation of change initiatives) and engage in creative processes that allow the possibility of change. Michelle and Ted also exhibit a strong orientation toward context—that is, awareness of a system's structure, the layers and individual parts that contribute to a system's functioning—although context thought forms do not dominate their thinking.

Group 2. The second group consists of Robert, James, Richard, and Michael, who have similar profiles, but are different in their overall pattern from the first group.

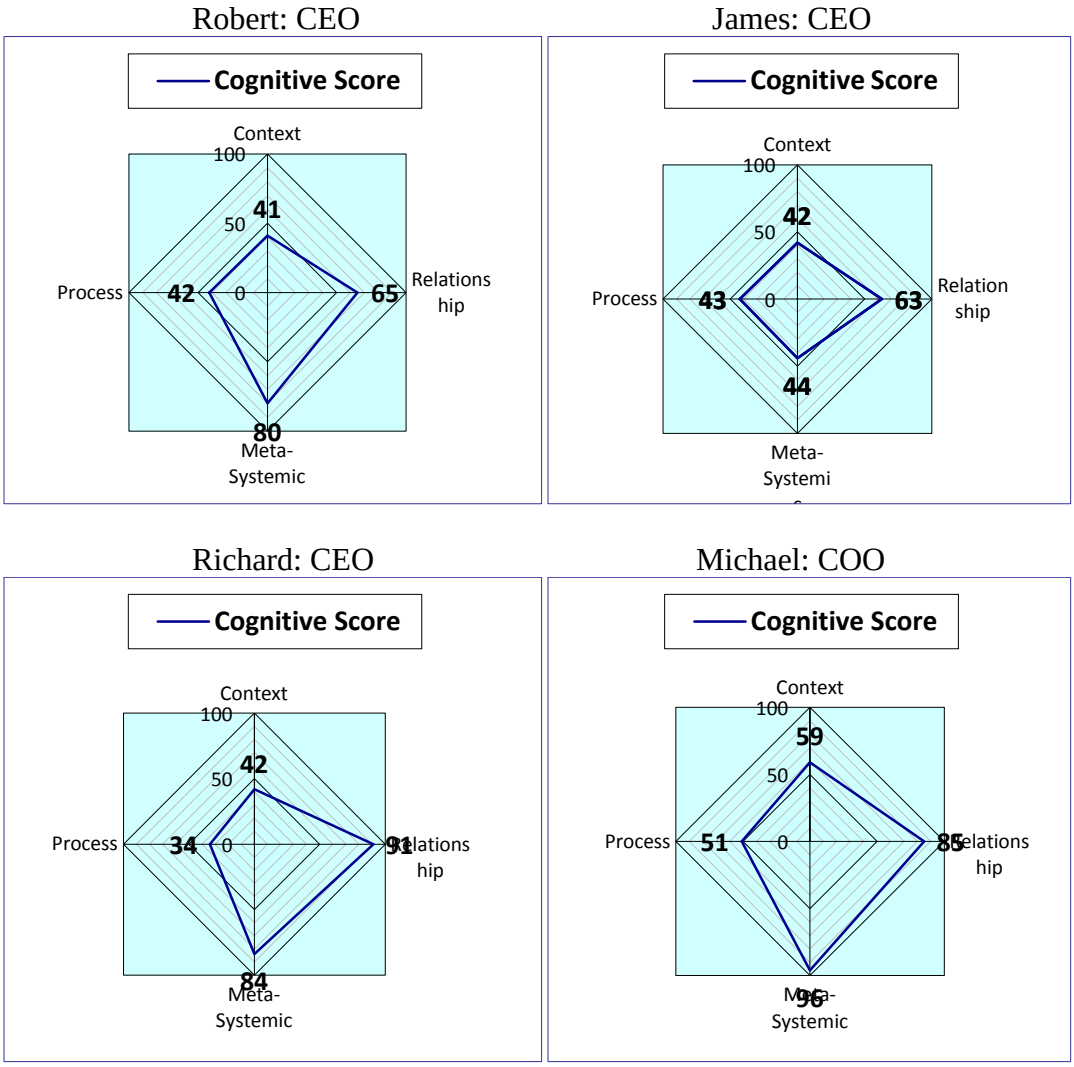


Figure 4.12. Profiles of group 2.

Members of the second group all share a strong relationship orientation in addition to strong metasystemic thinking. Although the four graphs in Figure 4.12 reveal very similar patterns, they are quantitatively different in terms of cognitive strength. James' and Michel's profiles exemplify these differences, as described earlier. Richard's and Robert's profiles in these graphs appear almost identical. However, a closer look at all indices combined reveals some major differences in their cognitive orientation. For example, Richard's Fluidity Index (total utilization and total strength) is much higher than Robert's, while they both utilize an equal number of thought forms. It is their clarity of expression (weight) that accounts for the difference, and this difference can be observed in the length of the blue lines within each graph.

The most interesting and unexpected finding is what appears as a correlation between these individuals' formal roles as CEOs and their skilled used of relationship thought forms. While the first group is composed of sponsors who are mostly senior executives in their daily work, the second group is composed of sponsors whose formal role is the highest formal leadership role in the organization—that of chief executive officer or chief operating officer. As these graphs show, the first group, senior executives, exhibited a consistently stronger process orientation, while the second group, CEOs, exhibited almost uniformly a strong relationship orientation. Why is this finding significant? Laske (2009) saw relationship thought forms as "an extremely important tool for moving away from absoluteness toward embracing a more inclusive stance" (p. 521). Laske continued:

> Through these [relationship] forms, one moves closer to the notion of *system* since one of the major implications of systems is that each constitutes the Common Ground of the elements it comprises. Without the relationships it encompasses, a totality is simply totalitarian. The fundamental thinking error regarding this class of thought forms is therefore the neglect or disavowal of, or blindness to, relationship. This error ruins systemic thinking, however strong the grasp of Process and Context may be. It also supports totalitarian thinking, which is based on unrelated absolutes.

> Just listen to ordinary conversations. They abound in context descriptions that are largely dead from the start since relationships are not part of the picture. Relationships are the lifeblood of contexts. This insight raises the question of whether paying attention to relationships between parts can forestall breakdown of a context or system due to limits of stability. Another important question is whether there exist relationships that are *constitutive* in the sense that they define the essence of what they relate and thus *logically precede* the elements they relate. (p. 521)

In today's world of work permeated by black-and-white thinking and focused on high performance in the short term, these four leaders demonstrated their ability to use the most difficult thought forms, those of relationship, as a tool to overcome one-sided, short term views and successfully transform their organizations. It is my strong conviction that the ability to use a combination of relationship and metasystemic thought forms is a powerful formula that can be credited not only for these four individuals' success as sponsors of change, but also as a differentiating factor in their career achievement of rising to the top of their organizations. This finding supports Jaques' (1998) theory of requisite organization. It appears that one's accountability level in a particular role may dictate the relative strength needed to be effective in that role.

Outliers. In addition to the two groups, Cynthia and Andrew emerged as outliers, in opposite ways (see Figure 413).

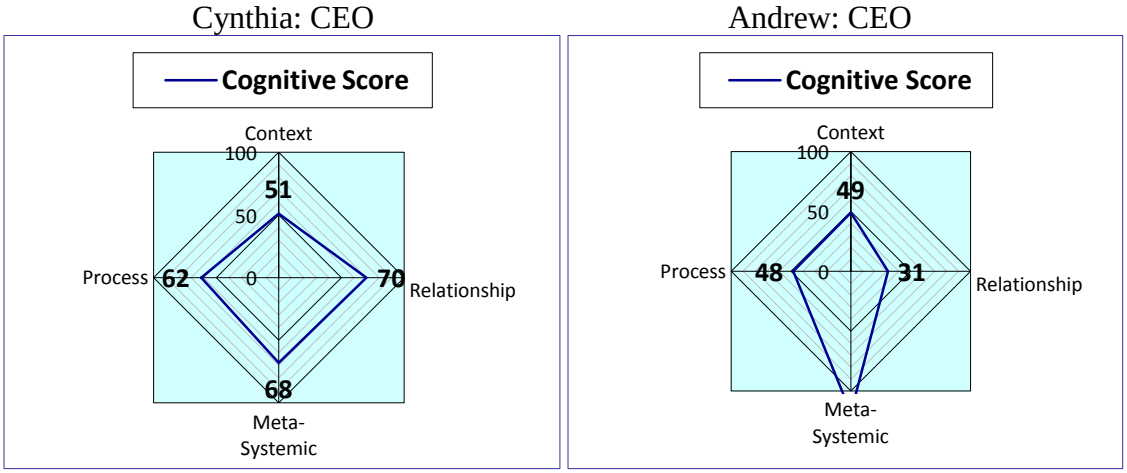


Figure 4.13. Profiles of outliers.

Cynthia's profile reveals her to be the most balanced thinker among the participants; hers is an example of a fully developed dialectical thinker who uses a high number of thought forms in a highly balanced fashion. Andrew's graph, in contrast, shows outstanding use of metasystemic thought forms while exhibiting an apparent weakness in thinking relationally. Considering the importance of relationship thought forms in thinking systemically, as stipulated by Laske (2009), it is hard to conceive that someone with the highest utilization of metasystemic thought forms among all the participants and with a solid track record of successfully transforming a large organization could lack relationship thought forms to such a high degree. I believe this imbalance is caused by a lack of explicitness and not by a lack of awareness. It is quite possible Andrew does utilize relational thought forms but did not exhibit that specific behavior during the timeframe of the interview. Andrew's example helps reiterate that this analysis of individual profiles does not define a person, but it helps reflect and illuminate that person's thinking.

Another interesting observation was that thinking in context implies static and non-systemic thinking. It is only when combined with the dynamic components of process and relationship that contextual thinking has the potential of approaching the metasystemic level and becoming transformational. While all participants in this study exhibited modest use of context thought forms, none of them think predominately in the context quadrant; thus, none of them are static in their thinking. In contrast, all participants exhibited a strong ability to see a system in transformation, as evidenced by the use of an unusually high number of metasystemic thought forms (between 11.75 and 24.75).

Summary

Even though this is a pioneering study where no comparative data is available, Laske (2009) reported:

> Most North American and European managers assessed through CDF between 1997 and 2007 have scored with a Fluidity Index between 15 and 30. This seems to show that the degree to which managers have evolved in their thinking rarely places them in the Third Order of Mental Complexity (Fluidity Index > 30). (p. 331)

Given evidence from earlier studies, it is apparent the participants in the current study are likely in the uppermost range of the population in terms of reaching the metasystemic stage. These 10 participating leaders are outstanding exemplars of dialectically thinking agents of change.

Commons and Bresette (2006) estimated, based on data, "only 20% of the U.S. population now functions at the systematic stage" (p. 675) and a small percentage reaches the metasystematic stage. The systematic stage corresponds to Basseches' (1984) 3rd phase of dialectical thinking, and the metasystematic stage corresponds to the 4th phase of dialectical thinking.

> Adult stage of development is normally distributed with a mean stage of formal and a standard deviation of one stage in our educated society (Dawson, 2002a; 2002b). Therefore, it not surprising that adult-developmental researchers find very few individuals who engage in the metasystematic performance necessary for creativity. Some examples are as follows: Armon (1984) found 9% (3 out of 32) on the Good-life Interview, and 15% (5 out of 32) on the Moral Judgment Interview. Richards and Commons (1984) found only 14% (10 out of 71 participants) on the Multisystems Task, Demetriou and Efklides (1985) found 11% (13 out of 114) on the Metacognitive Task. Kohlberg (1984; Colby & Kohlberg, 1987a, 1987b) found 13% (8 out of 60 participants aged 24 and older) who used stage 5 reasoning on the Moral Judgment Interview. Powell (1984) reported 9% (4 out of 44 participants) performed metasystematically. (Commons & Bresette, 2006, p. 676)

In this chapter, I presented the evidence of dialectical thinking among organizational leaders who have successfully transformed their organizations. In chapter 5, I discuss the findings of this study in relation to their implications for researchers and practitioners of

leadership and change. I suggest this study has addressed an important question about the role of cognition in the ability to lead transformational change and has also made a useful contribution to the body of knowledge about sponsorship.

Chapter V: Discussion, Conclusions, and Implications

Discussion

This study demonstrates how the cognitive line of development can be conceptually separated from other developmental lines within the framework of adult development. My purpose in doing this has been to understand more clearly the underlying structure of cognitive development prior to looking at relationships with other developmental structures. I also showed, through the comparison of these individual profiles, how the oversimplified, unidimensional scales found in various developmental assessment instruments can be misleading because they fail to recognize and differentiate other subtle dimensions that lead to much deeper insights about the person. These profiles also suggest that when leadership programs do not produce desired and expected results it may be because the programs are not tailored to the developmental needs of each participant. Because the profiles in this study were not developed from a deficit model but rather from a developmental model, they suggest possibilities for isolating and developing specific cognitive abilities as revealed by individual assessments.

This study helps us understand how individual sponsors of large-scale change make sense of their role and experiences. It also helps measure the extent to which individuals in a sponsorship role use dialectical thinking in their work. The feedback received by study participants (reported later in this chapter) confirmed the usefulness of the dialectical thought form framework for future studies.

Four questions were investigated in this study:

- To what degree do the sponsors of organizational change engage in dialectical thinking in their work?
- Is complexity of thinking related to complexity of sponsorship roles? If so, how?

- What phase of cognitive development must sponsors of transformational change attain to become effective change agents?
- Does a higher level of dialectical thinking lead to more effective sponsorship of transformational, complex change?

In summary, I found substantial evidence that dialectical thinking is highly relevant for successful sponsorship of transformational change. The data provided new information about the dynamics and the structure of the thought processes used by effective leaders of change.

Question #1: To what degree do the sponsors of organizational change engage in dialectical thinking in their work? The interview data provided considerable support for the assumption that successful sponsors use dialectical thinking in their work. In spite of the limited sample size, the results of this research revealed that all 10 effective sponsors of change were fully developed dialectical thinkers. This suggests that the ability to think dialectically might be an important contributing factor in sponsors' experiences of and successes with leading transformational change.

Question #2: Is complexity of thinking related to complexity of sponsorship roles? If so, how? The study demonstrated that this highly complex analysis of interview data led to an increased understanding of the way sponsors think about transformational, large-scale change. Although the data did not permit an empirical answer to this question, it allowed me to derive some powerful inferences. For example, the patterns of thinking revealed across the 10 study participants led to the identification of what could be contributing factors to their effectiveness as sponsors.

Question #3: What phase of cognitive development must sponsors of transformational change attain to become effective change agents? It is safe to suggest, based on these findings,

that effective change agents must attain at least phase 3 and ideally phase 4 of dialectical thinking.

Question #4: Does a higher level of dialectical thinking lead to more effective sponsorship of transformational, complex change? Analysis of the data identified specific patterns of thinking that might differentiate effective sponsors from others. Effective sponsors use of a broad repertoire of thought forms (between 20 and 27, or 70% to 96%, of the possible amount) including an exceptionally high utilization of metasystemic thought forms. Thought forms were well coordinated across all four classes; the ability to use multiple perspectives (i.e., to see the world around them from the perspectives of process, context, and relationship) enables the sponsors to think transformationally.

In the words of the interviewees, a sponsorship role requires a synthesis of both a leadership and a managerial role. Sponsors must balance a vision of the future with implementation details, treat conflict as a developmental opportunity, understand the systemic nature of their organization and the mutual influences of various parts within, and recognize how these parts relate to each other. It is only then that sponsors can fully grasp the complexity of the change they are leading. According to these findings, a higher level of dialectical thinking not only contributes to more effective sponsorship, it is essential.

I tested the usefulness of the dialectical thought form framework by soliciting feedback from participants after delivering an analysis of their individual assessments. Seven participants responded positively and acknowledged the value they received from the data. They also expressed great interest in learning how to expand their use of thought forms and a desire to use this knowledge as a tool to help them be more effective in their work. The three remaining

participants expressed interest, but had not received any feedback at the time of this writing due to conflicting schedules.

This study adds a new dimension to the expanding research at the intersection of adult cognitive development, organizational effectiveness, and leadership and change studies. I included integrative reviews of four domains of literature, strengthened by subsequent field research, leading to a new approach to the assessment and development of sponsorship capabilities. This was a pioneering study using a relatively new methodology, so I situate the study results within the existing literature, discuss the implications for professional practice, and address the issues of promises and challenges of dialectical thought form (DTF) methodology in scholarly research and leadership development. I conclude this chapter with a discussion of limitations of this study and recommendations for future research.

Leadership, Change, and Adult Development

While businesses recognize the increasingly complex environments and articulate the need for a different kind of thinking which provides more agility, creativity, and flexibility, they also grapple with responding to those needs by prescribing different behaviors to meet the challenge. The field of adult development provides a deeper understanding of the expansion of consciousness, a topic discussed with interest in the business literature. Nevertheless, with the exception of Torbert and Associates' (2004) work, it has not yet been explored empirically in greater depth. In the past 30 years, scholars of adult development have made remarkable advancements in understanding how adults develop over the lifespan. As discussed in chapter 2, adult cognitive development evolved as a separate line of inquiry within a broader frame of adult development. Researchers in adult cognitive development work toward understanding the new forms of thinking and the new consciousness required to deal with increasingly complex

systems. Therefore, applying adult development research in business contexts could lead to a rich tapestry of mutually beneficial discoveries and new ways of thinking and doing, as McIntosh (as cited in Volckmann, 2008) pointed out:

> It takes practice, but this dialectical perspective actually provides a new epistemological capacity. And this new capacity can be compared to the emergence of the heightened sense of reason and logic that arose with the modernist stage of consciousness. Modernists are able to use reason and logic as a new epistemological capacity over and above that ability at the traditional stage. And it seems to me that when you begin to see things developmentally, see things dialectically, and recognize problems as opportunities for growth, this provides a dramatic new way of seeing that can really make a big difference in improving the human condition. (p. 3)

The profiles of the 10 study participants echo McIntosh's statement. The participants all affirmed their ability to see the world in a new way and made a significant difference in the way their organizations function. It is reasonable to suggest these qualities are the results of the way the participants think.

The data suggest that these participants are a group of exceptional individuals belonging to a very small percentage of society capable of thinking at the metasystemic level. In Kegan's (1994) terms, the majority of the population has not yet reached the fourth order (self-authoring) of consciousness, yet this is a minimum requirement to handle the demands of modern life. In an interview with Elizabeth Debold, Kegan (2002) explained:

> But the data across a number of studies suggest that a majority of even well advantaged, well positioned adults haven't yet reached even the self-authoring mind, fourth order consciousness. This means that they do not have the capacities that would enable them to *thrive* within today's increasingly pluralistic world that requires individuals to exercise a kind of authority that, throughout human history, human beings have never had to do. In fact, pooling lots of different studies, we found that 58% of a composite sample of people, who were middle-class and most likely had the great advantages, had *not* reached the self-authoring level.
>
> Among a composite sample of people from a wide range of socioeconomic backgrounds in the U.S., 79% have *not* reached the fourth order. This means that 21% of the sample reached the self-authoring level or beyond. And only a tiny percentage of people in the studies are *beyond* the fourth order. (p. 3)

No empirical data on the associations between levels of cognitive development and social emotional stages are available yet, so Laske (2009) illustrated the hypothetical alignment of cognitive attainment of adult phases of dialectical thinking with Kegan's (1984) classification of four stages. Laske's distribution over four phases of dialectics is also aligned with comparative theories of adult development, as illustrated earlier in Table 2.2.

Table 5.1

Distribution of Adults over Four Phases of Dialectic in Comparison with Their Distribution over Four Social-Emotional Stages (adapted from Laske, 2009)

Dialectical Phase	Fluidity Index	Cognitive Attainment	Social-Emotional Stage	Social-Emotional Attainment
1	<10	10-20%	S-2	<10 %
2	>10 to <30	55-60%	S-3	55-60%
3	>30 to <50	20-25%	S-4	20-25%
4	>50	<10%	S-5	<10%

Kegan (as cited in Debold, 2002) described what is involved and how people experience transition from self-authoring or fourth stage (equivalent to the third phase of dialectics) to the self-transforming or the fifth stage of consciousness (equivalent to the fourth phase of dialectics):

> When people who have long had self-authoring consciousness come to the limits of self-authoring, they recognize the partiality of even their own internal system, even though like any good system, it does have the capacity to handle all the "data," or make systematic, rational sense of our experience. In the Western world, we often call that "objectivity." But just because you can handle everything, put it all together in some coherent system, obviously doesn't make it a truthful apprehension—or truly objective. And this realization is what promotes the transformation from the fourth to the fifth order of consciousness, from the self-authoring self to what we call the self-transforming self. So, you start to build a way of constructing the world that is much more friendly to contradiction, to oppositeness, to being able to hold on to multiple systems of thinking. You begin to see that the life project is not about continuing to defend one formation of the self but about the ability to have the self literally *be* transformative. This means that

> the self is more about movement through different forms of consciousness than about the defending and identifying with any one form. (p. 3)

This is exactly what these 10 individuals demonstrate. Through skilled and elaborate expression of metasystemic thought forms, they are capable of constructing a world open to contradictions and holding on to multiple systems of thinking. Thus, it is reasonable to conclude they have reached, or are on the way to reaching, the fifth (self-transforming) order of consciousness, as evidenced in the use of a specific constellation of thought forms.

The literature suggests (Basseches, 1984; Jaques, 1998; Kegan, 1982, 1994; Laske, 2009; Torbert, 2004) that individuals working at a high level of complexity, such as leading complex organizational change, who attain the metasystemic stage of postformal thinking may be more effective than those who have not reached that level of complex thought. The fact that all of the participants in this study were leading what appeared to be effective transformational change in their organizations and operated at high levels of dialectical thinking supports the emerging consensus of the literature.

Implications of the Study

This study was designed for a specific organizational context with the intention to contribute to the practical knowledge used by organizational leaders. In contrast to generalized theories that may be inappropriate for a particular context, or to local practices that may limit an attempt to generalize findings by studying local practices, this research design transcends both. DTF framework is rooted in theory and presupposes a specific stance, as discussed in chapter 2. The DTF framework is applicable for any context and social setting. When used in a specific context, such as the sponsorship of organizational change, it also becomes a tool for broadening one's mental space and, hopefully, leads to greater effectiveness as a change sponsor.

Findings in this study offer rich implications for the field of practice as well as for future research in spite of the limited sample size. DTF framework, when used as a research methodology, proved to help generate rich and meaningful data. When used in coaching, it is a powerful tool for personal transformation of consciousness, as experiences in both this study and my previous training have demonstrated. I first discuss the implications of this study for organizations and the potential to enhance internal capabilities for leading change.

Implications for Organizations—Role Accountabilities and Cognitive Capabilities

This study was originally envisioned as being situated in a work setting where, according to Jaques (1998), different degrees of work difficulty require different levels of cognitive complexity. I selected the role of a sponsor of transformational change, as it is one of the most complex roles a leader can assume. This implies that, even though I did not have means to empirically measure role complexity, I anticipated individuals selected for this study would deal with strata IV to V of accountability level (Jaques, 1998). Individuals operating on stratum IV operate in the innovation domain, focus on transition from present to future, and are accountable for creating new values through the development of new products, new services, or new markets. They are also responsible for translating organizational strategies into operational goals and securing resources to support strategy implementation. In the research sample, Michelle's and Ted's roles represent a typical stratum IV role. Individuals in stratum V are accountable for creating conditions for breakthrough innovation and whole system transformation. Stratum V roles often involve developing new business models or creating new cultures. Individuals operating in stratum V are future oriented with expected time-spans of five to 10 years. Stratum VI accountabilities involve transforming global organizations.

Considering that this study did not focus on the empirical investigation of work complexity of each participant, I can only point to an approximate association of cognitive fluidity ranges with task complexity. The central task in requisite organization is to define capacities to do the work and, then, to match individuals with particular cognitive capabilities with the complexity of the role. In this study, sponsors of transformational change work at least at stratum IV or V, and perhaps even VI. The participants' high cognitive strength scores indicate cognitive capabilities that met or exceeded the expectations of their roles at a particular stratum, according to Jaques' (1998) schema.

In their writing, both Laske (2009) and DeVisch (2010) suggested the use of DTF framework as a helpful developmental tool for assisting professionals with a move to the next stratum on their career trajectory. Interestingly, my experience with executives is that most of them are not interested in moving to the next level, but want to learn how to expand their cognitive capabilities to be more effective leaders in their current positions.

My sample was limited to a specific leadership role during change implementation for the purpose of maintaining consistency. Yet, the findings could be applicable to a broader audience, for example, to any leadership role demanding high decision making capacity and work in complex environments.

Implications for Study Participants—Face Validity

Considering that the DTF framework has never before been used in research with business leaders, I invited participants (upon completing a 1-hour feedback session) to comment on their own experience with the process. I was eager to hear their reaction to their profiles, their reaction regarding the DTF framework, and if and how it provoked their interest.

The feedback session the participants received upon the completion and scoring of their individual interviews served as a catalyst to provoke participants' thinking. Participants commented on the power of the DTF methodology, were explicit about its value, and expressed their interest for continued exploration and education about how to use DTF framework in their daily work. For example, the following statements exemplify overall participant reaction:

> I found the process interesting and generally encouraging. It is new methodology for me, but it made sense. (James)
>
> I found it very engaging and interesting—wholly apart from the feedback. I would hope that I might find nuggets of useful learning in the process to continue to grow. (Richard)
> Your research focuses on individuals who you believe have demonstrated a degree of accomplishment and, I assume, maturity. It would be interesting to see what results would show for younger, early career individuals. Can you identify and predict the potential for success and apply factors to build stronger cognitive development? (Robert)
>
> The process was very impressive and detailed. I have been through many evaluations and this was by far the most useful. (Michelle)
>
> I would definitely be interested in the next level—something of a practical guide for people on how to expand their minds. (Ted)
>
> The conversation helped me understand why I sometimes seem to see the "whole picture" and wonder why my peers and reports don't see it the same way. It reminds me that I need to be clear about the connections that I see before a group can move to the next level of discussion. I have noticed that as I obtain more senior positions with greater responsibility, I am required to be more balanced in my thinking and solution-finding which was confirmed by the findings.
>
> I would find it useful to have coaching questions that would help me ensure my peers and reports were being encouraged to think at a higher level. The research is very exciting because it has the potential to help everyone develop their thinking which will lead to better dialogue and better decision making. (Cynthia)
>
> This unique study will assist individuals with understanding their capabilities and thought processes. It will be an excellent instrument for sponsors to utilize in identifying organizational leaders. (Andrew)

These testimonies are powerful indicators of the potential of the DTF methodology for developing leaders, particularly those who are faced with making important strategic choices.

Implications for Professional Practice

Implications for practical application are potentially far-reaching. Due to a limited sample of sponsors of organizational change, my analysis is limited to exploring the implications of this study with the same kind of audience.

Implications for Change Sponsorship

My initial attempt to define sponsorship as a subcategory of leadership was profoundly enriched by participants' interpretations of the role and accounts of their direct experience. Through this, I realized participants' understanding of leadership differed from leadership as defined in scholarly literature. As a practitioner who has spent considerable time working with sponsors prior to engaging in the academic study of leadership, my views of sponsorship are more in line with those of the participants. What academic literature recognizes as principal qualities of leadership (vision, inspiration, empowerment etc.) is embodied in the role of a sponsor within the world of practitioners. But the role of sponsor also encompasses the best qualities of management and understanding all the intricacies involved in making change happen. This research could have easily been treated as another study of leadership. Sponsorship of change represents the finest and the most challenging form of leadership, yet it has neither been researched independently or captured the attention of the research community. Because there are many misconceptions as to what sponsorship is and means, I decided to chose sponsors as my research sample. In addition to exploring sponsors' thinking, I wanted to record a first-hand definition of what is involved in good sponsorship from those who have done it well. The following excerpts exemplify the participant sponsors' interpretations of their roles:

> So it takes more than just a decision type of CEO. I guess it's going in and wanting to have it happen, believing it's the right thing. (Robert)

When you're moving fast and you're doing too many things, you install the change but don't realize all the outcomes. And really defining those long-term outcomes and holding on while the next set of crises and disasters and urgent things shows up, but not losing that, tracking the outcomes so that we really do own the change. (James)
Your ability to sponsor change is directly related to your credibility as a leader in the community. (Richard)

The leader needs to set the vision, and be passionate, and to promote it consistently, incessantly. The manager needs to know how to make it happen, and they do not necessarily have to be the visionary. To be a sponsor of successful change, you've got to own, and have that vision, but you also have to know how it needs to be implemented. That doesn't mean that you have to implement it, because you can't in the most cases. But if you don't understand the components of making that vision come true, it doesn't happen. (Andrew)

I think there is a misperception that being a sponsor means you're just at a higher level, and that you own the resources, and that you just tell everyone what to do, and then you kind of check in on them once in a while. And I think, too, that's really nice wording of a sponsor, but I don't think that's an effective sponsor, and being a true sponsor, I think you really need to work hard, and you need to show people that what they do is valuable. (Michelle)

Big changes means that you're going to be affecting the way people either think, or do work; it's going to be some kind of disruption. When I think of disruption, I think of understanding that disruption, and how are we going to get people aligned on it, and then how are we going to support that change, and help drive it down into the organization, versus other leadership principle, or leadership aspects, or day-to-day operations may not take that level of energy and consumption. Sponsorship is you're actively engaged in making sure the outcome of this big change realizes the benefits. (Ted)

It's amazing how powerful sponsorship is. Leadership, I think, is more about being able to create a vision, to be able to develop strategy, to be able to motivate and engage people. Sponsorship is more about once it's clear . . . what has to be done, having the courage and the energy to make it happen. . . . I think another part of sponsorship is to be and fully feel accountable for the outcome—you can't delegate that—and [if] there are important risks that are not being mitigated you have to see to it that gets fixed even when it is not in your box. You have to make sure that all the things are in place for the initiative to realize its objectives. (Jack)

As a change initiative progresses, it goes through different stages, and I think that your role as a sponsor evolves with those different stages. . . . To try and make that case on a purely rational basis, without engaging people emotionally, I think, it's very hard to be successful. And so I give that more thought in the context of driving change than I might on the day-to-day basis of managing the P&L of a business. (Michael)

> [Leadership] is kind of building the framework. The sponsor is . . . what I would describe as more of a role about inspiration. So to me, it is more painting the picture, pushing the edges. What could this look like? What are the possibilities? And it's not always a place of comfort, right? It can be a place of discomfort. (Cynthia)

By using the TF framework as a tool with exemplary leaders of transformational change, I demonstrated the degree of complex thinking skills and conceptual depth in which they engage while describing change. These cognitive profiles give us clues about what is cognitively required for leading change while showing that the TF framework can guide developmental intervention for those who aspire to reach high levels of understanding and proficiency in leading transformational change.

Developmental Interventions

While the DTF framework is used as a coaching tool, there is a fundamental difference between conventional coaching focused on changing behavior and evidence-based developmental coaching focused on deepening one's awareness through dialogue. In a conventional, cognitive-behavioral approach, a person receiving coaching is conceived "as a habituated mechanism whose organizational functioning can be improved" (Laske, 1999, p. 139). Coaching behaviorally stipulates collecting data on a client's behavior through some kind of multi-rater feedback assessment, identifying gaps, and developing an action plan to move a client toward more productive behavior.

Cognitive developmental coaching means using "cognitive tools to facilitate" (Laske, 2009, p. 37) developmental shifts (not just behavioral changes). It begins with prompting the client to pay attention to stance in the decision making and understanding the impact of stance on outcomes, followed by using thought forms as prompts to begin moving toward a broader conceptual space from which to observe the current situation, followed by beginning to think dialectically about the situation. Through such illumination of a particular situation,

environment, or issue, the client acquires a broader repertoire of possible actions and, consequently increases the quality and complexity of decisions. The participants in this study are well developed and may not need coaching, but learning how to use thought forms could, as was expressed in their own words, help them to better understand their relationships with subordinates and peers. As Laske (2009) pointed out:

> Second order change, especially when viewed from a behavioral perspective, is insufficient to safeguard an executive's creativity, since it does not account for his or her ability to use different, often mutually exclusive, cognitive maps. First order change deals with where the organization presently is; second order has more to do with where the executive needs to take the organization in the future. (p. 12)

Specific development interventions could be immediately applicable by engaging qualified coaches to help sponsors cope with complexity of change in real time. The DTF framework is also a powerful tool for self-development and education without coaching, as my colleagues and I experienced during CDF methodology training. We learned how to use thought forms as prompts to observe our own thinking and, consequently, enriched the quality of our decision making processes.

Most importantly, the DTF framework is a promising assessment and developmental tool for long-term planning in terms of preparing executives for future roles at a higher degree of complexity (such as strategic development of sponsorship talent). For example, participants in this research demonstrated the presence of a large number of thought forms in their thinking, but at various degrees of clarity of expression (weights). My assumption is that, to increase sponsorship capabilities, it is easier to select someone who uses a broader repertoire of thought forms even at the lower weight, than to select someone with a more rigid worldview who would need to accommodate a significant number of additional DTFs in his or her existing cognitive

framework. For example, in a following excerpt weighted as 0.25 or 0.5 point, a participant gives a hint of TF 7 (embeddedness in an ongoing process of change):

> I think we still have big change left to do. I would say the last 5 years was about fixing execution and sort of unleashing innovation. We had two big pieces we were simultaneously trying to do, which was a significant expansion—so we've about tripled in the last 5 years. So a fairly significant growth rate. But also building some of the systems and infrastructures that didn't exist to be able to sustain growth. And so I don't know, we'll probably never be done with that.

In this example, the speaker is aware of an ongoing process of change, with the past and future as an aspect of the present, but sees processes only as linear moments of a large movement—the speaker has not yet reached the complexity needed for stronger expression of TF 7. The coaching task in this instance would be to help the speaker understand this particular process as a part of a larger process (i.e., to inquire about historical and political environment), and to perceive the long-term consequences of current change efforts. Such a conversation would then move to the larger context and to relationships, inquiring about how different elements (i.e., strengthening of a system to sustain growth) relate to other factors influencing the system. In other words, it would be easier to coach someone in a sponsorship role who is capable of expanding the use of this particular TF (as in this example), than someone who thinks in strictly formal logical terms and cannot see a change effort embedded in a larger context.

If development represents increased capacity to deal with complexity (Commons & Richards, 2002; Ross, 2009), then looking at sponsorship from a developmental perspective makes more sense than observing current (non-developmental) practices such as training for skills and competences or relying on behavioral indicators of performance. Developmental coaching seems to be a more appropriate intervention. The challenge of a developmental approach is that it is long-term and time consuming. It involves reorganizing one's epistemology to be able to deal with increasingly complex challenges developmental shifts that do not occur as

quickly as business leaders would prefer, if at all. However, a recent study by Santana Curnutt (2009) showed evidence of vertical development occurring in as little as 12 weeks of leadership training.

Mezirow (2000) posited development is the heart of transformational learning because it is through transformational learning that one develops a new perspective—more inclusive, mature, and reflective, leading to higher tolerance for change. The three critical elements of the process of transformational learning are reflection on experience, content reflection, and critical reflection on assumptions or premise reflection, which is postformal activity (Merriam, 2004). Merriam argued "one must already be at a mature level of cognitive functioning to engage in the transformational learning process" (p. 60).

Why is a developmental approach important for sponsorship? Sinnott (2010) suggested:

> The level of postformal thought of key decision makers in an organization can be used as a predictor of whether certain types of reorganizations will work at all or will be sustainable. Postformal employees can be a source of group evolution for organizations. (p. 238)

In times of rapid change, sponsors are in a position of changing organizational culture, and it is more likely that sponsors who think dialectically will help organizations move through change by embracing contradictory logic and engage others in solving adaptive challenges. Postformal thinkers in senior leadership positions, such as the participants in this study, are more likely to endorse postformal culture in their organizations than those who are not postformal thinkers. Sinnott (2010) made a compelling argument for the importance of postformal organizational culture and organizational change:

> This makes ongoing reform easier and more likely to occur, whether or not the current CEO is calling for a learning organization. Organizations that enjoy a postformal culture are more likely to be able to reinvent themselves as the need arises and emerge with a sustainable transformation. But, if the organizational culture is not yet postformal, while some of the workers have that cognitive skill, those skilled workers will keep their

> broader analyses of the situation very private so as not to frighten their defensive, more rigid management. Everyone will then agree for the record that there is only one way to do things. Restructuring will lurch from one version of the party line to a new version, with workers feeling cheated and betrayed. Postformal managers will find it helpful to quietly interpret the shifting realities for their workers, many of whom may see the necessary choice of realities but may be unwilling to say so at first. It is necessary to develop a postformal organizational culture, and doing so depends partly on developing a critical mass of postformal thinkers in the organization, especially at the decision making levels. (p. 237)

Limitations of the Study

The exploratory design of this research posed certain limitations. First, a small sample size of 10 participants does not allow for any generalization other than drawing cautious inferences from the study results. By design, participants' demographics represent a very small segment of the general population of organizational executives in the role of a change sponsor. The sample was limited to those sponsors who were successful in their role, but it is common knowledge among change management professionals that there are many more sponsors of unsuccessful change efforts.

Second, a lack of comparison group seriously limits the ability to demonstrate how unique these participants truly are. The only comparable data using the same assessment method is unpublished anecdotal data from my training at the Interdevelopmental Institute, where aggregate scores across middle managers and senior executives in case studies range in the Fluidity Index between 20 and 30 (as opposed to this group's range of 45 to 60).

Third, cognitive profiles alone are insufficient for a full understanding of one's cognitive capability. Exclusion of emotional, social, and psychological aspects (all necessary for a full understanding of one's cognitive capabilities) limits the possibility of understanding one's full capability to perform at a certain level of complexity. Inglis and Steele (2005) called such integration complexity intelligence (CI):

> Individuals may have a very high level of reasoning capacity, e.g., operating at the metasystematic or paradigmatic level identified by Commons et al. (2002), but if they have not also developed the necessary emotional capacity and social cognition, they will not have the CI needed to operate at the level demanded by prevailing life conditions. This may then show up as a gap between the ability to talk about a belief conceptually and the ability to embody it. This can be confusing to others, unless they are willing to look under the content of what someone is saying to the structure of how they think and accomplish tasks in the world. People are walking around all the time with this type of "integrity gap" and not quite able to see it enough to name it or remediate it. This is a gap of integration—something we can all experience at our growing edge. (p. 37)

It is important to understand that Laske's (2009) Manual offers an important theoretical foundation for understanding a person's sense-making process and also serves as a tool for expanding and deepening one's mental space primarily through coaching practice, but it is also important to not assume that a cognitive profile is the person's key strength. The full power of cognitive assessment can be maximized only when integrated with other lines of development (such as a social-emotional, ethical, spiritual, etc.), as Laske did with his comprehensive CDF methodology.

The extensive methodological training required to conduct this research limited the number of qualified raters available for establishing inter-rater reliability. I believe that only two other raters in the United States were certified at the master's level. One of them, Dr. Doug Stuart, graciously volunteered his time to serve as a second rater for three cases and as a third rater for another three cases where inter-rater reliability scores needed to be reevaluated. Other raters were from Australia and Europe and thus, communication was often slow and subject to time zone differences and varying availability.

Promise and Challenge of the CDF Methodology

According to Heifetz (1994), the work challenge must be meaningful for an individual to sustain adaptive change. Leadership development programs or coaching interventions that focus on behavioral change using prescriptive methods may not be effective because they do not

initiate shifts caused by a deep understanding of inner dynamics that impact behavior. The CDF methodology presents a viable alternative capable of initiating deep personal change if used appropriately in a manner that makes CDF personally relevant, adapted to an individual's specific work situation, and user friendly.

Otto Laske made an enormous contribution to leadership studies by developing a unique methodology for accessing and documenting the epistemology of a person, or the architecture behind one's consciousness. Such assessment is an essential step for initiating a journey of self-discovery and self-transformation leading to a better quality of action. The results of this study provided rich demonstrations of the power and the promise of this tool. However, during the process, I also experienced challenges that may limit the use of this framework on a larger scale unless a more plentiful community of collaborative practitioners willing to learn and practice working with dialectical thought forms is established.

Promise. The participants' feedback provided great support for developmental coaching. Traditional coaching focuses on problem solving or change caused by some problem or crisis, while developmental coaching focuses on developing new resources and skills to support continuous developmental efforts on a life journey. All participants in this study are accomplished and highly developed professionals, yet they all expressed interest in learning how to expand their use of thought forms to continue their growth and increase their effectiveness.

The most frequently asked question was "how can I use it in practice?" This points to a tremendous opportunity for further application. While dialectical thinking may be perceived as an academic discipline rooted in philosophy, coaching is a well-accepted method in business. As O'Connor and Lages (2007) put it, coaching is a methodology for change, "a practical way of working that can be used in conjunction with other methods" (p. 3). The dialectical thought form

framework represents a comprehensive frame of reference for viewing adult development and, when combined with coaching, I believe it could provide a very powerful tool for expanding cognitive complexity and directly and efficiently responding to the notoriously pragmatic culture of business, which often lacks the developmental dimension. In a Socratic sense, dialectical thought forms are the tools for deepening dialog—in most cases, the dialog with oneself.

> Top executives make tremendous difference to the success of an organization. The financial cost of a poorly performing executive is immense. Top executives need to make important decisions with little guidance, often with a lot of money hanging on them. They have few people they can confide in, and they are expected to know what to do rather than discussing any issues. It is lonely at the top, and an executive coach can provide an objective and critical sounding board for the executives' thinking. (O'Connor & Lages, 2007, p. 48)

Cognitive coaching focuses on a person's use of concepts in constructing the world and helping that person move from logical into dialectical thinking where one can elaborate conceptual relationships between different value and judgment systems, events, opinions, environments, contexts, and so on. In terms of change sponsorship, cognitive coaching may mean supporting sponsors in meeting the multidimensional challenges intrinsic to the role, helping them enhance agility in dealing with ambiguity and complexity of change, problem solving, and many other issues inherent in implementation of change, because transformation of systems by definition requires dialectical thinking (Laske, 2009).

This study tested Laske's (2009) methodology as an assessment tool and shows it has great promise for practical use. It would be invaluable to also test claims in Laske's (2009) book, *Measuring Hidden Dimensions of Human Systems (Volume 2)*, particularly his claim of trainability and hypothetical alignment of phases of dialectical thinking with Jaques' (1998) organizational strata.

The fact that this methodology is built upon a constructivist paradigm helps us understand its potential as a developmental tool. Constructivism stipulates that one's internal cognitive landscape depends on the ability to differentiate and integrate the elements from external reality and incorporate them to construct a more elaborate internal reality.

Therefore, one of the most important steps following this research would be to train a group of executives in using thought forms and then measure the effectiveness of the TF framework in accelerating one's development. Anecdotal data from students at the Interdevelopmental Institute who learned how to use thought forms and attested to the power of this methodology for self-development suggest that this methodology has tremendous potential for impacting the development of people and organizations.

Challenge. Upon completing this research and analyzing data, I was convinced of the substantial promise of CDF methodology. However, I also encountered some challenges that may impose certain limits on its wider application and inclusion in future research. The most significant challenges are related to the need for highly qualified assessors, time consuming and costly administration, and challenges in establishing inter-rater reliability.

Limited availability of qualified interviewer and scorers. Laske (2009) stipulated that interviewers need to be at least at the interviewee's developmental level or higher to elicit good quality data from interviews that would allow the interlocutor to display the full range of their thinking capability. Considering that a relatively small percentage of the population operates at the postformal level of development, very few people can use this tool, and even fewer of those may be willing to endure the long and rigorous training necessary for skilled and responsible use of the tool. As with other assessment tools, this one should be used with great caution to prevent

misuse such as labeling, judging, stereotyping, misinterpreting data, or overpromising the outcomes of coaching.

Assessment is time consuming and expensive to administer and score. Because of the complex nature of scoring this cognitive assessment and the lack of standardized scoring procedures, the process is very time consuming and costly. From my own experience, it takes at least two full days to administer and score one interview. Increased practice helped shorten this time, but not as much as anticipated. Each individual is different, so each interview and resulting data are different. Even after completing more than 10 interviews, I was not able to find room for shortcuts or simplification. The lack of standardized procedures also impacted my work with other scorers—there is not a reasonable average time spent on scoring as it ranged from 1.5 hours per interview for one scorer to an astounding 28 hours of scoring time for another.

Importance of inter-rater reliability. Scoring cognitive interviews is the most challenging task in both research and coaching. Because a scorer does not use interlocutor language at the face value, but must infer meaning from what is said, it would take years of practice, additional training, and material resources to attain the level of proficiency for a more efficient scoring procedure.

Based upon my experience, the results as they relate to reliability are promising, but a bit inconsistent due to the various levels of proficiency of certified scorers and the complexity of interview material. The process of selecting and training qualified scorers capable of handling assessments such as the ones in this research requires more precise calibration of potential scorers. I overcame this challenge by engaging in a very intense and time-consuming process of collaborative learning with several colleagues who felt the need for more practice to be able to increase their proficiency. As we progressed through the scoring process, we became

increasingly aware of the importance of inter-rater agreement first, to ensure credibility and trustworthiness with individual profiles, and second, to ensure that skilled practitioners will arrive at similar judgments upon scoring interviews and will be able to provide a similar quality of feedback and subsequent coaching to the interviewee.

We demonstrated that it is possible to achieve high level of reliability, but with considerable effort. To engage in coaching senior organizational leaders preparing for a major organizational transformation where stakes are high, I believe it should be, at least initially, mandatory practice for two people to score and evaluate interview transcripts, so a person's developmental needs are assessed with great precision and accuracy.

Difficulties in assigning weights. Another challenge I faced was developing a good sense for accurate weighting of participants' statements. In retrospect, I believe I was too cautious in assigning weights, which I attribute to my lack of experience and fear that I may over score and give a false assessment of cognitive abilities. Second scorers experienced the same phenomenon and looked to me for guidance. It was only after completing the entire research project that I felt more courageous in assigning higher weights. This limitation did not, however, have a negative impact on the participants' cognitive profiles. Had I assigned higher weights, I assume the graphs of several participants would indicate larger mental space, but the composition of ratios would remain the same.

Breaking New Ground

This research represents a journey into new, uncharted territory. I introduced two new concepts. First, I used theories and concepts from the adult development field to study the most complex and important role any leader could assume—initiating sponsorship of transformational change (Yukl, 2006). Second, I used the dialectical TF framework as a separate and relatively

new research tool to study adult cognitive development. Most adult development studies have been conducted in the fields of education and psychology. Most notable studies linking leadership and adult development remain limited to an observing stance, without providing specific cognitive tools to help expand one's mental space. This research followed Basseches' (1984) pioneering "genetic-epistemological approach to adult development as an alternative to the other ways in which change in adulthood has been studied" (p. 281).

Following the same line of reasoning, I accessed executives' epistemologies and tested dialectical thought form frameworks as a developmental tool. My motivation was primarily driven by pragmatic concerns. However, this research also points to an additional lens for observing and measuring adult cognitive development. By measuring dialectical thinking as a separate line of cognitive organization, this research provides a richer picture of one's epistemology that transcends other schemes, which portray adult development in a stage-like, linear fashion.

This research demonstrated that all 10 participants had evolved into complex dialectical thinkers reaching Kegan's (1982) stages 4 and 5, or Torbert and Associates' (2004) individualist or strategist and alchemist action-logics. However, the data not only describe a generic stance appropriate for a particular developmental level, they are unique and concrete, and ascribed to a particular individual. In Kegan or Torbert's schemas, all 10 of these individuals would fall into approximately one or two of the same stages, yet, the data from this research reveal that behind their common quality of being postformal thinkers lie deep epistemological differences that could be accessed only by scrutinizing the participants' sense-making processes, as was done in this study. Therefore, this study not only provides definite profiles of 10 specific individuals, but also opens an array of opportunities for another, richer method of looking at adult development.

Recommendations for Future Research

The results of this study and the richness of the DTF framework create endless opportunities for future research. I made pioneering steps in introducing and testing a major part of CDF methodology; it is my hope that this research will serve as a stepping-stone for a broad range of future inquiry.

One line of research could focus on operationalization of the DTF framework to advance organizational practices. Another line of research could focus on the broad repertoire of causal relationships between the phase of dialectical thinking and other variables, such as personal attributes, organizational contexts, other lines of development, and cross-cultural studies.

Recommendations for organizational practices. The most urgent priority should be to conduct a longitudinal study testing the effectiveness of using TFs to increase the cognitive capacities needed to engage in leading change. Such a study could also expand to include correlation between cognitive complexity and change complexity. The study could also expand beyond the realm of organizational change to test if learning dialectical thought forms accelerates the process of mental growth for a variety of organizational practices such as talent development, coaching, human resources management, not-for-profit management, and so on.

Another, equally important study could explore Laske's (2009) hypothetical alignment between Jaques' (1998) 3rd order of mental complexity and the phases of dialectical thinking. This would examine the complexity of information processing (CIP) versus the phase of dialectical thinking.

This study was not focused specifically on CEOs. Yet, the identified emerging patterns of the four CEOs who have been successful agents of change may give some hints to less

successful CEOs regarding why and how to consider cognitive capabilities as an important success factor in organizational leadership and what to do about it.

The study results suggest the ability to use more relationship TFs in a more elaborate ways may be a differentiating factor that sets CEOs apart from other senior executives. I also speculate it may also separate successful from less successful CEOs. One line of research could test this observation on a larger sample and include less successful leaders of change.

Exploring causal relationships between phase of dialectical thinking and other variables. Another line of research could explore a series of causal relationships between a specific constellation of thought forms and other personal attributes as variables. For example, what is the role of experience in increased ability for dialectical thinking? Does the number of organizations a person worked at play a role in increased capacity for complex thinking? Does age impact the ability for dialectical thinking? Are there differences in patterns of thinking between genders, profit and not-for-profit leaders, or successful leaders and the general population? What is the relationship between CEOs' cognitive development and organizational culture?

Using dialectics in this research advances the possibility of future studies in understanding the relationship between cognitive and other developmental lines. What is the underlying structure of thinking at different stages of other developmental lines? For example, an important line of inquiry would be to identify specific underlying thought forms that must be mastered to move from one developmental stage to another. Another one could complement the work of Labouvie-Vief, Grühn, and Studer (2010) on a dynamic integration of emotion and cognition by using DTF framework to explore their mutual influence.

Laske (2009) pointed out the crucial role of the stage of epistemic position on bridging cognitive and social-emotional development. King and Kitchener's (1994) seven stages of reflective judgment specify hierarchically ordered epistemological assumptions associated with different degrees of thinking complexity and poses a question: Can we distinguish epistemic positions by thought forms? It is safe to assume that lower stages of reflective judgment are dominated by formal logic and that higher stages (6 and 7) should exhibit a high degree of dialectical thinking. However, such a relationship has not yet been explored.

According to Basseches' (1984) research, certain TFs appear in phase I, II, III, and IV of dialectical thinking. People have a natural propensity to access certain TFs depending on what phase of dialectical thinking they are in, and as these phases are linked to epistemic levels, at least hypothetically, there is this relationship. Therefore, empirically examining the relationship between higher stages of reflective judgment and phases of dialectical thinking could be rich ground for further inquiry.

Cross-cultural research. Another substantial body of research could be linking dialectical thinking with cross-cultural studies, which suggest that some cultures are more open to change than the others. In Western cultures, we tend to think in closed systems using formal logic, principles, categories, and classes. Other cultures, such as Asian in which processes are much more acknowledged, have much more awareness of ongoing change (Nisbett, 2004).

Nisbett's (2004) numerous studies provided substantial evidence on fundamental differences between Easterners and Westerners on:

> Assumptions about the nature of the world, in the focus of attention, in the skills necessary to perceive relationships and to discern objects in a complex environment, in the character of causal attribution, in the tendency to organize the world categorically or relationally, and in the inclination to use rules, including the rules of formal logic. (pp. 189-190)

His findings were unequivocal: that dialectical thinking was prevalent in Asian thinking and logical thinking was preferred in Western thinking.

Future research could explore what kind of thinking, in terms of thought forms, coincide with different cultural attitudes (according to Asian dialecticism as noted by Nisbett, 2004). The two fundamental questions posed by Laske (2010) could open up a whole array of topics worth exploration: Are cognitive interview outcomes universal? And, how are adults living in different cultures distributed over the four phases of dialectical thinking? DTF framework could be used to expand Nisbett's (2004) observations beyond Asia to multiple regions and world cultures and enrich current understanding of rich cultural variables in business practices.

Conclusion

I understand that dialectics is not a solution for all problems. Undeniably, Western preference for logical thought is deeply rooted in ancient philosophical traditions that are in conflict with dialecticism (Nisbett, 2004, p. 176). My own drive for doing this research was influenced by my profound awareness of the need to empower thinking in a way that enhances decision making capabilities and may reduce judgment errors and failures when leading change.

In a culture accustomed to models, principles, and best practices, dialectical thinking may not be appealing. Considering the urgency of finding new ways to deal with complexity and that the majority of the people in the Western population are formal-logical thinkers, finding an acceptable solution for creating expanded mental models capable of dealing with current challenges may require some creative thinking. Approaching business professionals with the proposition of teaching them complex thinking may appear too threatening. Therefore, developing a fixed strategy to learn and use a finite number of thought forms and simplify the

language may be a powerful method of influencing the mindsets of key decision makers in a change process.

My intention was not to develop a new tool for measuring cognitive development, but to validate Laske's (2009) existing DTF framework. Positive feedback from participants strengthened my strong belief that DTF framework has promise for use in business settings. However, I received repeated words of caution about the density of the material and the need to simplify the language to make it accessible to a business audience. Study participants offered invaluable suggestions as to the structure of potential developmental programs suitable for practical application. My revised scoring procedure and extensive work on ensuring inter-rater reliability created conditions for beginning work with executives in sponsorship roles based on findings from these participants, which is beyond the scope of this research.

This dissertation reflects the spirit of the Ph.D. program in Leadership and Change. My interdisciplinary and multi-method approach emphasizes theoretically and empirically rigorous research, yet it is practical in its purpose. In addition to conducting scholarly work, this study represents my rich and dynamic personal journey filled with exhilarating experiences of recognizing new possibilities mixed with moments of disorientations and self-doubt inherent in the pain of growth, learning, and change.

I felt tremendous liability in being the first to use this methodology for scholarly research while being aware of uncertain outcomes. I embraced ambiguity and the possibility of failure, and faced a sometimes overwhelming weight of responsibility while translating some of the most complex concepts into accessible language for a non-academic audience. My overwhelming sense of gratitude and humility toward my study participants and people who helped me reach this milestone helped me overcome fears and doubts, and empowered me to act with personal

and professional integrity. As a researcher, my goal was to validate the DTF framework as a research method. As a practitioner, I intended to explore thinking patterns of successful sponsors of change hoping to develop new insights into what may help improve sponsors' performance and rate of success within change efforts.

In this study, I explored sponsors' thinking patterns by using sophisticated methodology and produced data accessible to practitioners—this was a challenging balance to reach. In spite of limitations due to a small study sample size and the lack of a comparison group, this study provided significant data about one's cognitive landscape. It also raised an array of possibilities for future research. The findings suggest an additional dimension of looking at effectiveness in leading change—measuring how leaders think.

At the completion of this study, I returned to the starting point of my inquiry—the role and significance of sponsorship in implementing organizational change. After spending much time reviewing literature on sponsorship and diving deeply into the philosophical realm of human nature and the working mind, I see tremendous value and potential in bringing these two areas together. In this study, I showed that the concrete, task-focused, and performance-based organizational setting would greatly benefit from a deeper understanding of complexity and how to approach it. I also demonstrated that the philosophical underpinnings of dialectical thinking are not merely esoteric musings reserved for academic exploration, but that bringing these two together could open up new possibilities for change effectiveness. Sinnott's (2010) statement summarizes my sentiments about pursuing this impactful line of research and practice:

> Understanding the richness of adult thought is fine in its own right, but being able to promote the development of that thought may be an even greater gift. What would our world, our relationships, our lives be like if we had larger access to this thinking? Living in a more complex world could be as exciting and enriching as acquiring color vision when before one had seen only in shades of gray or acquiring use of language when before one could only stand mute! (p. 313)

APPENDIX

Appendix A: Professional Certificates

CERTIFICATE OF ACHIEVEMENT

PROGRAM ONE, PART B

This certificate is awarded to

IVA VURDELJA

for successfully completing the **Interdevelopmental Institute Program One, Part B** class in 2008. The holder of this Certificate has thereby obtained sixteen (16) Continuing Education Credits in evidence-based management and/or coaching focused on client's cognitive development over the life span, a credit also recognized for ICF's Portfolio Route. S(he) has acquired a grounding in integrative thinking and a beginning knowledge of techniques of using dialectical tools in a holistic and systemic approach to complex, ill-structured problems, in whatever field.

INTERDEVELOPMENTAL INSTITUTE

Otto Laske, PhD PsyD M.Ed
CEO and Director of Education

April 2009
Date

INTERDEVELOPMENTAL INSTITUTE

Based on records of attendance of the four modules of IDM Program One, the submission of a case study on an individual client, and a successful exit interview, the Director of Education of the Interdevelopmental Institute hereby confers upon

Iva Vurdelja

this **CERTIFICATE OF DEVELOPMENTAL ASSESSMENT**
with all the rights and privileges
of this achievement.

Given at Medford, MA, USA, February 2010

Otto Laske

Otto Laske, Ph.D., Psy.D.
CEO and Director of Education

INTERDEVELOPMENTAL INSTITUTE

Based on records of attendance of the four modules of IDM Program One, the submission of three additional case studies through Program Two, and a successful exit interview, the Director of Education of the Interdevelopmental Institute hereby confers upon

Iva Vurdelja

the **CERTIFICATE OF MASTER CERTIFIED DEVELOPMENTAL COACH AND CONSULTANT**
with all the rights and privileges of this achievement. (120 ICF CEUs)

Given at Medford, MA, USA, this 10th of July, 2010

Otto Laske

Otto Laske, Ph.D., Psy.D. M.Ed.
Founder, Director of Education

Appendix B: Consent Form

Antioch University
Ph.D. in Leadership & Change
INSTITUTIONAL REVIEW BOARD

Informed Consent Statement and
Agreement to Participate in Research Study

You have been asked to participate in a research study on thinking and sponsorship conducted by Iva Vurdelja, a doctoral candidate in the Organizational Leadership and Change program at Antioch University, Yellow Springs, Ohio.

The purpose of my research is to understand how executives in the role of a sponsor of organizational change engage in transformational thinking (higher order thinking) in order to make sense of their work assignment, role and experiences. I will be speaking in depth to a limited number of individuals who have experienced or are currently involved in sponsoring a major organizational change and who are willing to share their views and personal accounts while leading change efforts.

The study involves one conversational, semi-structured interview which will be arranged at your convenience and which is expected to last about 1 hour. The interview will be audio-recorded. Once the interview has been transcribed, I will share a copy of the transcription for your review. You will also have an option to receive feedback at the conclusion of the study, which will be scheduled at your convenience. The feedback consists of a "map" of your thinking with interpretation of your individual cognitive profile. Neither prior preparation for the interview nor any additional work from your side is required. Additionally, you will have access to the final report of this study.

Your name as well as any company/organization affiliations will be kept confidential, unless and only if you give express permission for me to use your name in my report. You will also have the opportunity to remove any quotations from the transcribed interview. All data will be stored in a locked cabinet indefinitely and may be used for future scholarly presentations and publications. The results from these interviews will be incorporated into my doctoral dissertation. You may withdraw from this study at any time (either during or after the interview) without negative consequences. Should you withdraw, your data will be eliminated from the study.

If you have any additional questions regarding your rights as a research participant, you can contact me or my advisor, Dr. Jon Wergin, (Professor, Antioch University at jwergin@antioch.edu or by phone at 804-269-3826.)

There is no financial remuneration for participating in this study. If you have any questions about any aspect of this study or your involvement, please contact

Dr. Lisa Kreeger
Chair, Institutional Review Board
Antioch University Ph.D in Leadership and Change

150 E. South College Road
Yellow Springs, OH 45387
lkreeger@antioch.edu
937-319-6144

Two copies of this informed consent form have been provided. Please sign both, indicating that you have read, understood and agreed to participate in this research.

_____	_____	_____
Name of participant (please print)	Signature of participant	Date
_____	_____	_____
Name of researcher (please print)	Signature of researcher	Date

Appendix C: Table of Dialectical Thought Forms

PROCESS THOUGHT FORMS **What is absent, but is emerging through unceasing change**	
TF number and key phrases	TF Description (Intent of Sense-making)
1. Acknowledgment of unceasing change	Emphasis on: (1) on unceasing movement, (2) on hidden dimensions, (3) on negativity. Unselfconscious expression or explicit assertion of unceasing change as basic to human existence. Awareness of past and future in the present. Contrast: TF 22
2. Preservative negation (inclusion of antithesis or "other"); T-A-S movement	Captures the logic of moving from one thought to another (T-A-S movement). This motion is in three phases: (1) A base concept is stated (thesis); (2) The base concept is made more explicit, that is, related to an idea so far excluded from, outside of, apart from, or contrary to the base concept (antithesis); (3) A new base concept emerges that generates a more differentiated version of the base concept (synthesis), by integrating the base concept with the element(s) introduced as antithesis. Seeing change as the cancelling, including, and transcending of what exists, leading to differentiation of events and situations through inclusion of what they exclude, and resulting in opening up hidden dimensions in conceptual space. Contrast: TF 27
3. Creation of new by correlation of opposites, emphasis on constitutive relationships	Emergence of something new through an interchange of opposites – energy or ideas. Composition of something that includes its "other" as a necessary ingredient, or as "figure" vs "ground". The emphasis is on the mutual influence, or energy field, between two or more parties or entities. Description of a process, an interchange, not of a relationship. Contrasts: TF 19, 20, 21, 22
4. Patterns of interaction as a source of movement in thought and reality	Extension of TF 3; focus on ongoing interaction as a source of movement. Patterns of motion in interactive relationships with focus on motion. Processes of "give and take" that negate, contradict, critique, bring about a shift in, social reality. Focus on *how exactly movements occur*. Contrasts: TF 2, 19, 20
5. Active, practical nature of knowledge	Emphasis on active (questing) and practical (rather than passive) character of knowledge; knowledge as always "under construction" in contrast to the assumption that the knowledge is already there ready to be applied. Contrast: TF 23
6. Critique of arresting motion and process (reification)	Assertion of the relevance of motion; awareness of what seems to be static is actually part of an ongoing process; critique of denying, hiding or disavowing change. What exists cannot be isolated from unceasing change since it is a form, not a thing. Contrasts: TF 7, 28
7. Embedding in process, movement	Focus on the fact that what exists is embedded in an ongoing process or motion, with the past and future as an aspect of the present. Contracts: TF 3, 4, 6

CONTEXT THOUGHT FORMS **Constructive (not critical) in nature, focus on systems that are largely stable over time, appears as a static system, organized in functions, structures, strata, etc. non-identity**	
8. Contextualization of part(s) within a whole, emphasis on part. Alternative to objects having attributes	Attention to an organized larger whole of which something is a part or element, and which forms the encompassing context of something. Contrasts: TF 10, 11, 12, 13
9. Equilibrium of a whole, emphasis on whole Alternative to objects having attributes	Attention to the balance of an organized whole, or the way in which it forms a Gestalt. Holistic perspective in which the parts are subordinate to the whole. Contrasts: TF 10, 11, 12, 13
10. (Description of) structures, functions, layers, strata of a system	Grasping the nature of organized wholes. System descriptions in historical, functional, structural, mechanistic terms, or in terms of strata and levels composing a whole. Emphasis on the complexity of what exists, and modeling such complexity. Difference between the model and what it models. Contrasts: TF 8, 9, 11, 12, 13
11. (Emphasis on the) hierarchical nature of structures and layers systems comprise	Grasping the nature of wholes. Description of the nature of hierarchy in systems, or lack thereof, relevance thereof. Emphasis on transcendence and inclusion of lower levels as implicit in higher ones. Contrast: TF 9
12. Stability of system functioning	Grasping the nature of organized wholes. Describing or explaining the smooth functioning of a system with focus on its stability and on what makes it possible. Contrast: TF 9, 22
13. Intellectual systems: frames of reference, traditions, ideologies	Grasping the nature of organized wholes. Describing the larger philosophical or ideological environment and context of assumptions, ideas, principles, paradigms. Contrasts: TF 9, 28
14. Multiplicity of contexts (non-transformational)	Simultaneous attention to a variety of contexts or dimensions in which events, situations, individuals are embedded (without stressing their relationship or transformation). Contracts: TF 25, 28

RELATIONSHIP THOUGHT FORMS **Emphasis on common ground**	
15. Limits of separation of contexts. Focus on existence and value of relationship.	Pointing to common ground and difficulty of separating things from each other beyond certain limits. Limits of separation, not their coordination as systems Contrasts: TF 16, 17, 18, 19, 20, 21
16. Value of bringing (contexts) into relationship	Assertion of the value of seeing a relationship between things or forms otherwise seen as separate and unrelated, but it is not systemic in the sense of TF #26 Contrasts: TF 15, 17
17. Critique of absence of holistic thinking	Critique of neglecting relationships between opinions, assumptions, ideas, leading to a reduction of complexity to overlooking underlying shared frameworks, thus common ground Contrasts: TF 18, 19, 20, 21
18. Relatedness of different value and judgment systems	Assertion of the relatedness of seemingly different, even opposed values, judgments, ideas, principles, stressing cultural commonalities. Contrast: TF 20
19. Structural aspects of relationship	Focusing on what is the formal structure of a relationship in order to locate the essence of how things are related Contrasts: TF 4, 15, 16, 17, 20, 21
20. Patterns of interaction in relationships	Describing a pattern of interaction and influence in a relationship, emphasizing the pattern(s) of interaction between the elements that are in relationship. Contrasts: TF 4, 21
21 Constitutive, intrinsic relationships (logically prior to what they relate)	Describing a relationship as constitutive or as making the parts it relates what they are. Emphasis on the logical and other priority of the relationship over the elements it relates. Contrasts: TF 2, 3, 15, 16, 17, 18, 19, 20

TRANSFORMATIONAL THOUGHT FORMS **Emulating Life in Thought**	
22. Limits of stability, harmony and durability, including quantitative into qualitative changes	Pointing to limits of stability, balance, and durability without making their causes explicit. (Emphasis is on the "negative" aspect of negativity which also has a positive aspect, that of emergence.) Contrasts: TF 3, 12, 23
23. Value of conflict leading in a developmental direction	Value of the conflict itself and the resolution of conflict in a developmental or transformational direction, leading to dissolution of older forms and systems. Systemic form of the move to an antithesis (TF #2) Contrasts: 2, 22, 24
24.*Value* of developmental potential leading to higher levels of functioning, integration and social change	Value of developmental movement (with or without conflict) for the sake of transformation, establishing a new balance, greater inclusiveness, higher levels of equilibrium. Integrates practical reason into dialectical thinking by associating value with developmental processes. Contrasts: TF 1, 23
25. Evaluative comparison of systems in transformation	Holding systems side by side as forms, and evaluating them as to effectiveness, usefulness, adaptability, and as mutually sustaining. Evaluative comparison of systems in transformation. Multiplicity of perspectives driven further. Contrasts: TF 10, 14, 26, 28
26. Process of coordinating systems. Articulates the coordination of thought forms	Attention to the process of coordinating two (or more) systems with each other for the sake of bringing them into balance. Contrasts: TF 15, 16, 25
27. Open, self-transforming systems Sums up dialectics – to emulate life in thought	Emphasizing the equilibrium and ability of a living system to remain "itself" based on unceasing transformation; pointing to a formal aspect of identity-in-transformation. Contrasts: TF 2, 22, 23, 24
28. Integration of multiple perspectives in order to define complex realities; critique of formalism	Critiquing the one-sidedness of abstractions; preserving concreteness and realism by juxtaposing one or more perspectives on the same subject matter. Critique of formalistic thinking that separates structure from content, and of conceptual hubris pretending to represent realities fully by man-made concepts (nominalism) Contrasts: TF 2, 6, 16

Adapted from Laske (2009, pp. 443-622).

Appendix D: Recruitment Letter

June 2010

Dear Colleague,

I am currently a doctoral candidate in the Leadership and Change program at Antioch University. This summer I will be completing the research for my dissertation and the subject of my study is the transformative thinking of sponsors of organizational change. I am researching how executives who are in a sponsorship role think about and make sense of their experiences when sponsoring major change initiatives. I would like to speak with people who are recognized by their colleagues and/or their supervisors as effective sponsors of change.

I would appreciate your help in identifying and recommending one or more individuals who could be likely participants in this study, and who fit the following profile. The ideal participant would be someone who:

- is currently, or was recently. sponsoring a major change initiative (either as an initiating or a sustaining sponsor);
- has sponsored change in one of the three domains:
    - reengineering, process improvement,
    - creation of new operational frameworks, new product or service, or
    - whole-system transformational change;
- is recognized by his or her peers as effective sponsor;
- has demonstrated the ability to articulate his or her thinking to others;
- is recognized by his or her subordinates or peers as someone who demonstrates higher order thinking;
- is recognized as someone who affects significant change(s) within his or her subordinates.

A potential candidate is expected to participate in an one-hour semi-structured interview. No prior preparation is required. In return, the participant will have an option, upon completion of the study, to receive an additional one hour coaching session for individual feedback and discussion of study results.

Would you please consider recommending either an executive or a manager from your recent experience who fits this profile and whom I may approach to participate in this study? If so, please contact me by telephone at 312-218-4904, or email at ivurdelja@antioch.edu. In the meantime, if you have any questions or want further information on the length and scope of this study, please feel free to contact me. Thank you.

Sincerely,
Iva Vurdelja
Doctoral Candidate, Ph.D. in Leadership and Change
Antioch University, Yellow Springs, Ohio

Appendix E: Introductory Letter to Research Participants

Dear Research Participant:

Thank you for agreeing to participate in my research on transformative thinking of sponsors of change. This study will fulfill part of the requirements for my completing a Ph.D. in Leadership and Change from Antioch University. I am very grateful to have the opportunity to work with you on this very interesting topic and would like to express my appreciation for your time and effort in advance.

In brief, here are some things you can expect:

The Purpose of the Research

The purpose of my interviews is to understand how executives in the role of a sponsor of organizational change engage in transformational thinking (higher order thinking) in order to make sense of their work assignment, role, and experiences. This is qualitative, phenomenological research with quantitative outcomes. I will be speaking in depth with a limited number of individuals who have experienced, or are currently involved in, sponsoring a major organizational change and who are willing to share their views and personal accounts while leading change efforts.

Time Commitment from You

I am asking you to participate in <u>one interview lasting 60 minutes</u>. The interview will use cognitive interview framework developed by Dr. Otto Laske, and will explore the use of dialectical thought forms to illustrate the complexity of your thinking. The interview will be taped, transcribed, and analyzed to examine the structure of your thinking according to the research protocol and accompanying scoring instructions. Your confidentiality will be fully protected.

Your Benefits

You will also have an option to participate in another one-hour session to receive feedback at the conclusion of the study, both of which will be scheduled at your convenience. In the second conversation, we will review the analysis of your individual interview. You will receive a "map" of your thinking and feedback with interpretation of your individual cognitive profile. I want to reiterate that neither prior preparation for the interview nor any additional work from your side is required. Additionally, you will have access to the final report of this study.

If you have any questions or want further information on the length and scope of this study, please contact me by telephone at 312-218-4904, or email at ivurdelja@antioch.edu. Thank you.

Sincerely,
Iva Vurdelja
Doctoral Candidate, Ph.D. in Leadership and Change
Antioch University, Yellow Springs, Ohio

Appendix F: IRB Approval Letter

Dear Iva Vurdelja

As Chair of the Institutional Review Board (IRB) for Leadership and Organizational Change, Antioch University, I am granting you approval to conduct your Dissertation titled HOW LEADERS THINK: MEASURING COGNITIVE COMPLEXITY IN LEADING ORGANIZATIONAL CHANGE. Your study is approved based on the information presented in your Ethics Application, including submitted attachments. Lisa Kreeger, IRB member, has been assigned to your case and will be your contact person for the duration of your project. Please consult with this IRB member if you have any questions regarding the Ethics of your project.

Your study is approved from August 10, 2010 to August 9, 2011. If your data collection should extend beyond this time period, you are required to submit a Request for Extension Application to the IRB.

Your study will be overseen by Dr. Jon Wergin, Chair of your Dissertation Committee. Any variation in procedure in the treatment of the participants must be reported to Dr. Jon Wergin and subsequently approved by the IRB through your submission of a revised Ethics Application.

Sincerely,
Lisa Kreeger, PhD.
Chair, IRB Committee
PhD in Leadership and Change Program
Antioch University
150 E South College
Yellow Springs OH 45387
lkreeger@antioch.edu
Phone: 937-654-0076

Appendix G: Sample of Scored Interview

Cognitive Interview Coding Sheet
Jack

Participants ID: 08 – Scoring work sheet for two scorers

Interview ID & Page	**Bit Number, Thought Form and Assigned Weight**	**Questions to Ask Myself:** What structural evidence leads me to selecting this Thought Form? If several Thought Forms are applicable, how can I explain my choice? What is truly in focus in this statement? What is the essence of what is being said?
TASK HOUSE		
Page 1 13-20	Bit #1 4 [.25] 10 [.5] 21 [.5] weak; the Co. is constituted by internal & external mfg; emerging markets is constituted by BRIC, etc.? 24 [.5] weak, in that growths & change is implied, but is it developmental? 4 [.25] 10 [.5] 21 [.5]	My formal role is Senior Vice President in charge of External Manufacturing. Our company has many plants that we own that make our products, but we also have a lot of products that we have other people make for us. I'm in charge of all of them, everyone outside of our corporation, and I'm in charge of Emerging Markets. So, we have a major corporate initiative to grow dramatically - by about four or five X, grow our revenue in emerging markets – Brazil, Russia, India, China, etc. – over the next five years, which implies completely different ways of supplying for manufacturing and my job is to work with the commercial leaders to understand their needs and to come up with ways that Manufacturing Divison will supply in a different way. *Emphasis on a need to change the way of doing business as a result of planned growth. External manufacturing and own plants = constitutive relationships, developmental potential required for systemic change.* *I see the "growth of manufacturing" a as base concept here, that consists of external and internal man. I agree that it is not developmental; removed 24 [.5] and increased 10 to [1]*
Page 1	Bit #2	...the two parts of my organization are very different, and actually, they were just put together. The External Manufacturing part, I can talk about it, it's very traditional in

25-30 Page 2 1-6	 7 [1] OK 26 [.5] OK What about 8? [1] Agree, but the entire bit weights max 2, so... 7 [.75] 26 [.5] 8 [.75]	terms of there's an organization; there's roles and responsibilities, etc. The emerging markets part is forming, so it's much more – emerging. Now, there are, and actually a lot of these questions are part of what we're trying to do; determine what the structures are; what the governance is. In the meantime, it's me. So, in External Manufacturing, my formal authority is - I'm accountable, and responsible for the performance of all of those external suppliers, all of those sites. So, I'm viewed as the operations head, just as if they were our plants. And I'm responsible for deciding when there's new work to go outside, who does it go to? So, which suppliers do we use? And I'm responsible for increasing what we do with you, or decreasing what we do with you, and ultimately, if you're not performing it's my responsibility. *The emphasis is on speaker's own role in the process of coordinating two systems in transformation.*
Page 2 10-19	Bit #3 4 [1] 5 [.25] 27 [.5] seems more 23 than 27 – not much about emergence or self-similarity See #3, 5, 9 & 10 at TF 27. There is no conflict involved, but it looks like more emphasis is put on practical value of knowledge, so I increased TF 5 to [.5] 4 [1] 5 [.5] 27 [.5]	Well, through the expertise of my people, and a clear vision of where we want to end up in the future. So, that's one of the key things is it's very easy to make these decisions tactically, and you'll get your supply tactically in the short-term. What's more important is to understand the environment, the business, where you want to end up in three, four, five years, so get clear on your intent, and then make sure that that guides your tactical decisions along the way. And so, we have a team, and maybe I'm the decision-maker. It's called a tactical ring. People come forward with recommendations about what that decision should be, and we make sure we understand the details, but then more the discussion is about whether the strategic one is this an exception to our strategy and our vision, and if so, are we clear on that, and we're going to do it anyway, or is it consistent, and is it perfectly aligned with where we need to end up? *The speaker emphasizes ongoing interaction in a process that leads to transformation; implied practical character of knowledge through emphasis on interaction of ideas as a motor of knowledge creation.*

Page 2 28-31 Page 3 4-12	Bit #4 Weight 2-2.5 15 [.25] 16 maybe .25 18 maybe .25 22 [1] OK 19 [1.5] maybe too heavy – doesn't go into detail about nature of relationship I agree. 15 [.25] 16 [.25] 18 [.25] 22 [1] 19 [1]	Well, there is a lot of that right now, because the other side of the fence, which is emerging markets, is very important. It's under a lot of pressure. It's fast moving, and we don't fully understand all the strategies associated with being successful yet, and the decisions in the two parts of the organization are interdependent. For example, many of our suppliers, who are the people who supply us as part of my External Manufacturing role, are potentially people who should or should not be suppliers as we try to move in to be more successful in emerging markets. So, in the Emerging Markets space we may be doing deals where they develop partnerships, for example, with companies in China, in order to drive revenue. At the same time we want to find suppliers in China for low cost manufacturing as part of our external manufacturing role. So should those be different companies or the same and why? There are different drivers, but we want to try to end up with something that makes sense, so there's a lot of that kind of ambiguity. *The speaker focuses on the structural and interactive aspects of relationships between suppliers and External Manufacturing, and implies limits of stability of a system.*
Page 3 12-20	Bit #5 2 [.5] 4 [.5] 16 [.5] ? 27 [1] ??	So, the way we deal with it, first of all, is to we try to work quickly to get the separate strategies associated with each segment clearer, and then with that understanding we can bring them together into one integrated strategy. In the meantime we are in communication and comparing notes so that we don't move in isolation. So, once we have that, we can go back to having a process, and having principles, and having a framework for the whole thing, and we'll have exceptions and things, but then we'll have that framework. We don't have that today. So, one is to try to move that process forward, and then in the interim, it's really about communication and collaboration, and trying to make the best decision we can, knowing we don't know everything we wish we

	2 [.5] 4 [.5] 22 [.5]	knew, but we still have to keep things moving. *Separation before integration into higher level of functioning; implied benefit of bringing separate segments of the system into relationship.* *The speaker views transformation as deriving from the synthesis of different, even contradictory forms. I buy this argument, but again I don't see it implying 27; I see both 22 and 23, rather than 16 (as I read the probe Q's)* *I agree, I misinterpreted TF 16, and also overweighted the entire bit. It is no more than 1.5* *It looks more like 22 than 23. I don't see any conflict.*
Page 3 25-31	Bit #6 16 [1] 4 [.25] 6 [.75] Agreed	Well, a big part of my job is to sensitize the organization to the fact that these things are interdependent to try to connect people who may be independently unaware that they really are interdependent to make it clear to people, because it also creates anxiety when you say we're not where we need to be, but we still need to move, so to let people know that it's okay, that's it not perfect, that we will make some mistakes. But in the meantime here's how we're going to operate, and until we get everything clear, so it will be transparent about that, and that we can accept some lack of perfection. What's really important is that we keep things moving, and also it's to drive discussions, because through this struggle, I think, also, the strategies, themselves, start to emerge. *The speaker asserts the value of bringing people who have been independent into relationship, qualitative movement toward higher level of functioning*
Page 4 8-14	Bit #7 11 [.25] worth scoring? 16 [.75] simply states that he connects people who can make things happen – hardly scorable 16 [.75]	How do I relate to them? Well, first of all, by definition there's hierarchy, because it's an organization. But that's transparent to me. I'm much more interested in information and capability, and skill, and connecting people who can make things happen. I can work at any level, and I'm very comfortable with that. I have very high standards, and I'm competitive, and I want things to be right, so I guess I'm very open and transparent. So, when things aren't right, it's like that's not right, and we need to definitely learn from that, but it's not punitive anyway. Our idea is to try to create a learning kind of environment. *The focus is on valuing what has been seen as a relationship of various forms (information, capacity, skills) that transcend hierarchical nature of the organization leading toward development, but too weak to score.* *I agree with 11 not being scorable, but I definitely see him expressing (indirectly) the value of bringing all available information, capability and skills together in order to*

		create a learning environment. I see this as being a base concept (unification of all capabilities regardless of hierarchical nature of the org.)
Page 4 19-31	Bit #8 20 [1] not very reciprocal; not worth 1.0 23 [.5] **?** I agree. 20 [.5] 23 [.5]	If I can't be myself and be successful, then I'll go somewhere else. I don't have enough energy to try to be something I am not. We all want to improve, but fundamentally to change my nature is just too much effort, so I'm very collaborative, but collaborative also means I'm happy to tell you I disagree, or I don't understand, and I'm also happy to say, "I have no idea; I'm not nearly smart enough to understand what you just said, I mean, I totally didn't get it," all that kind of stuff. I guess what I'm saying is I challenge my boss, just as much as I challenge my peers, just as much as I challenge people who work for me, and I expect them to do the same. And in some ways I surprise people by that, or by my level of transparency, but sometimes even Bill… he'll slam his fist on the table to make a point. I'm like, "Bill, I hear your passion but I just don't see it that way for these reasons.. ..," you know? Is this all SE? There are specific examples where we want to close a plant, just as an example. From an MMD manufacturing perspective, the business, the commercial folks say in country X, if you close that plant, it's going to cost me ten times what you're going to save in price or whatever, the government retaliation. So, that's a sore point. So, anyway, we come forward, and we've had all those discussions, and it's the right thing to keep the plant open. *Emphasis on speaker's patterns of interaction in various relationships, underlined by valuing emergence of conflict as a source of development. It's a value statement. Is it transformational? I don't think so.*
Page 5 25-26 Page 6 3-12	Bit #9 3 [1] OK	Interesting. Well, first of all, the roles of sponsor and change agent are completely different, and sponsor is much easier. Well, when I was chief change agent, that is I was head of the PRO, and head of the initiative for the strategy execution. You have very little resource; you have very little accountability, and you're driving everybody else way out of their comfort zone. The only hope you have, really to survive, is that your sponsor is stronger than their resistance. [Laughter] So, it was very, very painful, especially early on, and there were a lot of people who I respected a lot, who thought I was totally out to lunch, and that somehow I had lost my mind. And that went on daily for a couple of years. Even using the change execution methodology, itself, was a change that was so dramatic that it took a long time before people accepted it. So, you've got to just keep going at it, and try to be objective, and try to be clear about why you think it's the right thing to do, and try to

		help bring them along the curve. *Interpenetration of opposites*
Page 6 21-31 Page 7 1-5	Bit #10 8 [.5] 13 [1] OK	As a sponsor I find, first of all, it's amazing how powerful sponsorship is, just little doses can have a big impact on people's motivation and direction. I'm thinking of my old job leading EMEA. It's an easier example, but we have a bunch of initiatives, all of which are important, and lots of people working on them, leading them, engaged in them, etc. And initiative X, painful, difficult; they're having a three-day meeting in [Europe], just calling in at the end of the meeting for 15 minutes to hear them read out, "Here's what we accomplished," and to give them my encouragement, and feedback, or at the beginning of the meeting to tell them how important this is, and why I think it's important, and what I expect them to do, little things like that has an amazing impact. And like I said, that's one example of sponsorship; the other example is like on the network initiative that I mentioned with [my colleague]. I consider the situation I described as sponsorship, and I think, I don't know if you'd call it; well, I find that pretty easy, also, because you're convicted about the criteria. So, that's sponsorship. Leadership, I think, is more about being able to create a vision, to be able to develop strategy, to be able to motivate and engage people. Sponsorship is more about once it's clear about what has to be done, having the courage, and the energy to make it happen. *Contextualization of different parts of organization and the role, and the description of two different frames of reference (sponsorship vs leadership)*
Page 7 13-20 Page 8 4-7	Bit #11 6 [1] I don't see the critique; I don't see anything being claimed as static; looks more like 4 (see 5th probe Q) 20 [.5] I prefer 4; not reciprocal, and more emphasis on motion than pattern	Well, I think another part of sponsorship is to be and fully feel accountable for the outcome – you can't delegate that – and there are important risks that are not being mitigated; you have to see to it that gets fixed even when it is not in your box. You have to make sure that all the things are in place for the initiative to realize its objectives. So, governance, for example, if an initiative doesn't have the right structure, or whatever it is, a leader and a team, and a clear charter, and whatever, you can tell at the beginning it just ain't going to happen. We're all very busy, but to be a good sponsor, if that's the case you need to take the time, and energy to make sure it gets fixed. Whereas, I think a leader might see that somehow…. I guess I would say that the other thing is that, formal authority is important, but I also think that you can do a lot through informal authority influencing, and I think sponsors have to do that, as well, because many times they have to get other sponsors to do it. *Critique of arresting motion – The speaker makes an effort to inject motion into*

	Agree 4 [1.5]	*something that appears as static or stable. Indication of pattern of interaction (through informal authority)*
ORGANIZATIONAL HOUSE		
Page 8 20-31 Page 9 1-7	Bit #12 8 [1] 10 [2] agreed	How would I describe my organization? My formal organization is actually less relevant than my effective organization. My formal organization on the External Manufacturing side, I have a group of leaders in different technology areas who have people working for them who manage our external suppliers. That's just operations and that is my direct organizational responsibility. But that, in itself, doesn't accomplish anything. The way we manage is we have something called a tactical ring and it is essentially a matrix, which includes my operations people, and then all the functions. We have a global functional organization, so that team, which is my team, has some people who report to me, but a lot of people who don't. So, we have the parallel quality organization, which is part of External Manufacturing. They're in charge of the quality support, technology, HR, finance, etc., and I lead that ring, which is responsible cross-functionally for managing all of our external suppliers. And their ultimate leaders are my peers, and then in Emerging Markets, it's the same thing. I actually have, again, a small number of people, one in each region Asia-Pacific, etc., and their teams around the world, but then I have the functional support, as well. And we manage everything as a team, and actually, they would view that as their primary structure, and their function would be their important, but secondary structure, and that's just within Manufacturing. The other thing I would say is sort of above me in Emerging Markets, I'm part of a team where I have Manufacturing, Research, Commercial, Finance, etc., and that is really our Emerging Markets structure of which I am a member. *Contextualization of the organization with emphasis on parts, and structural and functional aspects of the system*
Page 9 29-31 Page 10 1-2	Bit #13 4 [.25] I don't see a pattern of interaction; just an ordered list 8 [.25] I'd say .5	Yeah, I mean, in Manufacturing, in our culture and our politics are: compliance is number one, supply, making product available is number two, strategy, so making sure that we're doing things for the long-term interest of the business is number three, and profit plan, or budget, which is doing things for the short-term interest of the company, or the organization is number four, and that's how we try to work. *Pattern of motion in interactive relationships embedded in contextualized work*

	Agree 8 [.5]	*environment.*
Page 10 7-18	Bit #14 4 [1] OK 12 [.5] OK, as applies to first half 26 [.5] I don't see 26; more like 22; not so much coordinating as the attempted integration causing change Agree, changed to 4 [1] 12 [.5] 22 [.5]	A couple of ways: First of all we have the most critical element of that process is the annual planning process, sort of an annual process where we lay out our assumptions about the work for the next year, and then we lay out our assumptions based on that work about the resources needed, and the dollars needed to support it. And then we get approval for that plan, and then over the course of the year we're held accountable for that plan, or actually usually held accountable to a plan, which is much more aggressive than that, as things happen, and the business tells you we need you to do better. Having said that, though, we are in a period of hyper-intensity. We're trying to do more with less, and we're changing everything about the company as we do it, and we're merging with another large company, [Company B], etc. So, it's unbelievably intense. So, as we run into roadblocks, constraints, the need to prioritize, the need to change how we're working or what we're working on, or whatever, we work together to make those adjustments. *The speaker describes patterns of interaction with focus on movement; emphasis on structures and functions credited with system's functioning. Indication of coordination of two systems for the sake of bringing them into balance.*
Page 10 19-29	Bit #15 5 [1.75] 4 [.25] I see more 'acting on' than interacting Agree. Removed 4	We went into that planning process just recently, where nobody, say in Manufacturing, really understood what this emerging markets thing was for the company, and there's no way that every function on Willie's team could independently estimate what they needed to support; it would be a complete disaster. So, we agreed that I would plan everybody's resources, so if you're Quality, I'm going to tell you that you need 50 people next year to support what I'm telling you, and everybody around the table. So, in this tactical ring, which has all those folks, we worked hard with the business to understand it. We made estimates of everything, and we created the Emerging Markets budget for all the functions, and that was approved, and as they need to hire people against that plan, they just come to me, and we let them do it. So, it's a good example, I think, where we try to work together when we need to, or count on each other to get

	5 [1.75]	things done. *The speaker outlines information gathering and actionable aspects of knowledge.*
Page 11 5-21	Bit #16 26 [3] agreed	We have a diverse culture, but we have a very strong organizational culture. But now it's been disrupted, obviously, because now we just merged with another large pharmaceutical, so we're trying to redefine our new culture together. So, we're schizophrenic right now. We are very scientifically driven, tends to be perfectionist, very conservative, very regulatory, and compliance-driven, process-oriented. That's a lot of what we've been trying to change within our Co, as we try to implement all these initiatives, and make decision making more rapidly. It used to be much more decision by committee, etc., so we've tried to make it much more single people accountable. We're also very centralized, and sort of global functions, everything comes back to the center. [Company B] is very decentralized, very less central control, less risk-averse, more local business focused. So, now we're bringing those two things together. And Emerging Markets, the whole new area we have to go into requires a completely different culture and mind set. So, we're in the middle. *Coordination of two different systems for the sake of bringing them into balance.*
Page 11 26-31 Page 12 1-8	Bit #17 18 [1.5] 25 [1.5] Also hints of 22 at the end Agree. 18 [1.5] 22 [.5] 25 [1]	Well, I think there are sort of some visionary and practical elements. The visionary element is to further our purpose. We bought another large pharmaceutical company. To further our purpose to improve human health through breakthrough medicine. The other organization had a very strong pipeline of products that was very consistent with our therapeutic areas of focus, and there was a lot of synergy there, between what they had, and what we have. So, that's sort of the visionary part. The practical part and both companies were facing patent cliffs when products are going off patent, and independently our research pipeline wasn't sufficient to overcome it. We needed each other at the same time from a business perspective. So, it furthered our purposes about improving human health, and therapeutic areas we were interested in, and improving our pipeline, but also, basically bought us time to figure out what I believe is going to be needed, which is the next business model for the pharma industry. I think the current business model is on life support, and it's a big industry, a big company, it's not going to happen overnight, but I think we have five to ten years to figure out what's next, and this gives us that time. *Relatedness of two ideas (vision and pragmatism). The speaker evaluates two organizational traditions in terms of their difference and commonalities, and in terms of*

		their potential to contribute to developmental transformation of a new system.
Page 12 13-27	Bit #18 3 [.25] 5 [1.25] 14 [1] 28 [.5] agreed; nice!	Again, we're going from a developed market, conservative, US-Europe based mindset, and now we want to win in Asia. We want to win in Latin America. It's a totally different set of roles, and principles, and tactics, and people, and skills, and capabilities. I'm spending a lot of time getting educated about what those markets, themselves, not from a manufacturing perspective, but from a business perspective, but what I'm trying to do to grow, and then working with them, and my colleagues to try to translate that into what does Manufacturing need to look like if we're going succeed. For the five years we're succeeding and we're number one or two, instead of eight or nine, what does that look like? And then build the organization to make that happen, which typically means local people, non-our company people; well, it often means that. It's a combination of those new skills, capabilities, mindsets, that are very much expert in the local, plus the expertise and capabilities that we provide, and a combination of both. But it's not taking what we have today and moving it. *Multiplicity of contexts; practical value of knowledge expressed through implementation of ideas, expression of inclusiveness and integration of diverse capabilities in order to define complex system*
Page 13 27-31 Page 14 1-10	Bit #19 2 [1] 22 [2] Agreed; good analysis!	First of all, our culture is very strong. [this product] exemplifies in some ways that we viewed ourselves as a breakthrough medicine company. It should focus all of its powerful internal resources and capabilities, which are world class, etc., etc., on discovering and marketing those breakthroughs, and that's what we were in successful at for decades. The problem is, (A) that that's not working sufficiently, discover research productivity is not high enough to sustain the blockbuster model and we cannot internally drive the innovation all ourselves in things like emerging markets; that's not what they need. They actually need lots of smaller innovations, maybe even of already available products, extensions of them, or combinations of them, all things, which in a traditional mindset would not be considered a breakthrough. You're just adding two things together, or you're just reducing the number of pills someone has to take a day, but it's not new therapy. Traditionally, that's not viewed as how we add value, but in China in the next ten years, they're going to grow by the population of the United States. All those people need medicine. Our medicine isn't currently cheap enough for them. If we want to grow; if we want to survive, that's the game we've got to get into. So, we are changing those things, but they're deeply embedded. There are just so many

		aspects. *What was working before does not work anymore. The speaker emphasizes the limits of durability of certain constellation of products.*
Page 14 10-22	Bit #20 15 [.5] 16 [.5] 27 [.5] 28 [.5] also implications of 22 here Yes, I added 22 [.5] Final: 15 [.5] 16 [.5] 22 [.5] 27 [1] 28 [1]	Again, the whole thing about being very ethical, very competent, functionally, and this whole thing about divisions, the Manufacturing Division, the Commercial Division, the Research Division; it's been true for many years, and it's less true now, but it needs to be much less true in the future, that we operate largely independently. No true business, no competitive business that's under true pressure can operate that way. And actually, that's one of the things that's really neat about the Emerging Markets is in the team that I'm on, that's an area where everything we're doing right now, and thinking about is driven directly by what the business is saying needs to happen, so it's much more interdependent, much more integrated. We can't sit back in our division and say we'll continue cranking out the medicines we're cranking out from our factories, and you'll be okay. That's not going to solve for their business. So, it's I think a good example of where we need to go in the future. We're all really sitting around the table. We're holding each other accountable. *The speaker points out the limits of separation of different divisions and value in bringing them together. Integration of multiple systems*
Page 14 28-31 Page 15 5-11	Bit #21 6 [.5] 12 [1] I see the focus more on what must change and what the change agents will be – is that 22? I agree, however, those elements constitute the basis for maintaining the	We changed Manufacturing a lot, but we need to continue to change it, and we're going to change it in even bigger ways going forward. And I'd say we're still largely the old company, and we're just barely starting to get into that new culture, I think. And that's our biggest challenge, frankly. I think we have some pretty good ideas. We actually talk about it a lot. Much more rapid and disciplined decision making is a good example, much more candor and courage to really call it like it is, and to challenge people that the old way is not going to work. And much more customer focused; instead of being my process is my god, and this is what I do everyday; it's like, Does anybody care what I do? So, customer focus, courage and candor, disciplined decision making, rapid decision making; those are some of the key elements, I think, in the future. *The speaker expresses awareness that what seems to be static is actually part of an*

	functionality of a system, so I split 12 to [.5] and 22 [.5] Final: 6[.5] 12[.5] 22[.5]	*ongoing process. He also brings up elements that must change or improve in order to contribute to the stability of system functioning.*
SELF HOUSE		
Page 15 20-31	Bit #22 7 [1.5] 24 [1] the higher level of functioning is more implied than stated, but I agree with the number 7 [1.5] 24 [1]	I think it fits very well in a couple of ways. First of all, I've moved around a good bit, meaning actually my previous job, I think, was probably my longest, but it was actually more than one job. It was a couple of jobs. But anyway, I've moved every two to four years, so it's consistent in that way. It's time for a new challenge. And fundamentally in some ways I have much less people than I did before. In my previous job I had 4,000 people. In this job I don't even know how many I have, maybe 200? But that's not a concern at all. For me the areas that I'm working in are the future of the company, and the future of Manufacturing. So, External Manufacturing, that's definitely where we're headed from a manufacturing perspective, and Emerging Markets is definitely where we're headed from a business perspective. So, it's much more back into that change agent role for Manufacturing, I am the agent for all this emerging market stuff. And everybody around here doesn't necessarily like what they're seeing. It's going to require us to disturb all the things we've worked so hard to create. *The speaker situates his own career progression into a larger context. He sees himself embedded in ongoing process of organizational transformation. Systemic aspect is only mentioned in a background.*
Page 16 5-9	Bit #23 5 [.5] 24 [.5] Agreed; again, 24 is more implied than defined	On the other hand they know we've got to do it, intellectually, but I'm saying it's going to be a tremendous experience. I'm learning about India, and China, Brazil, Russia for me, and also I think it positions me to understand better those parts of the business which are going to be important for the future, so I don't know where it will lead. My philosophy has always been I've never once asked for a job, or even pursued a job. That's bad. They've all just happened. Yes. So, you just do the best you can; you learn, you try to contribute, and things happen.

	Final: 5 [.5] 24 [.5]	*Value of practical, active nature of knowledge, expression of developmental potential for him and the organization.*
Page 16 23-31	Bit #24 18 [1] Nice insight; don't know if I would have found that	Different people are motivated in different ways. I think the two things that really motivate me are, number one, I'm competitive; so, I just like to win, whatever it is. I want to make it work, or win, or make the department, or the division, or the company win, and two, I like the positive feedback, either personally or whatever from doing a good job. And I like being on a team where I feel like I can contribute, and I am contributing, and I'm valued, just like anybody else. So, some people are really motivated by the concept that we're providing lifesaving medicines, which is great, and I like that, but that's not really what gets me up every day. For me it's about doing something that's going to help us win, or doing something that helps my team, or my department or my colleagues, my team, whatever that ends up being, better. *Finding common ground in motivation by relating two different concepts: competitiveness and contribution*.
Page 16 11-17	Bit #25 6 [1.5] I just have a hard time with this TF; to me the critique is implied – no one is actually "denying, hiding, or disavowing change". 6 [.5] 7 [.5]	Well, that's a great question. Some people are very directed about "I want to be this ten years in advance, or twenty years in advance." I've never been that clear. What I've been is as long as I'm progressing on a steep trajectory within the organization, or in terms of my view of how I'm developing, I'm fine. I'll continue, and see where that takes me, and that's kind of the calculus, and I've continued to get new challenges, and do well, and get new challenges, and do well. And if I started to plateau or stagnate or outlive my ablue**???,** then I would look elsewhere, or do something different. *Clear expression of the relevance of motion and critique of denying movement and change.* I see it as more 7 than 6 – See Otto's "contrasts with..." for 6. Let's compromise – I see TF 6 in "as long as I'm progressing, I'm fine...and if I started to plateau..." ,but I can also see TF 7. Also, I think that this bit doesn't weight more than 1.

Appendix H: Sample of Inter-rater Agreement Worksheet

Inter-rater agreement worksheet– 3 scorers

INTER-RATER AGREEMENT														
#2 James				Initial Agreement							Final Agreement			
Bit #	My scores	2nd scorer (Otto)	3rd scorer (Nick)	Iva/2nd scorer		Iva/3rd scorer		2nd/3rd scorer		Adjusted scores	Between Iva's final scores & 2nd scorer (Otto)		Between Iva's final scores & 3rd scorer (Nick)	
				Q	W	Q	W	Q	W		Q	W	Q	W
1	9[1] 20[1] 21[.5]	10[1] 20[.5]	10[1] 19[.5]	1	1	1	1	1	1	10[1] 19[.5] 20[.5]	1	1	1	1
2	13[.5] 25[.5]	21[.5] 26[.5]	21 [1]	.5	1		1	.5	1	21[.5] 26[.5]	1	1	.5	1
3	10[.5]	13[.5] 18[.5]	20 [1]	.5	1		1	.5	1	13[.5] 20[.75]	1	1	.5	1
4	20[1]	20[.5]	20[1]	1	1	1	1	1	1	20[1]	1	1	1	1
5	20[.5]	21[.5]	21[.5]	1	1	1	1	1	1	21[.5]	1	1	1	1
6	7[1]	22[.5]	22 [1]	0	1		1	1	1	22 [1]	1	1	1	1
7	7[.5]	1[1]	1[.5]	1	1	1	1	1	1	1[.75]	1	1	1	1
8	7[1]	7[1]	7 [.5]	1	1	1	1	1	1	7[1]	1	1	1	1
9	7[1] 24[.25] 25[.25]	9[.5] 24[.5] 25[.5]	2 [1] 22 [.5] 25 [.5]	.5	1	1	1	.5	1	2[.5] 9[.5] 24[.5] 25[.5]	.5	1	.5	1
10	4[1.5] 22[1]	16[.5] 17[.5]	14 [1] 16 [.5]	0	0	0	1	.5	1	14[1] 16[.5] 17[.5]	1	.5	1	1
11	3[.25] 23[.5]	3[.25] 23[.75]	22 [1]	1	1	.5	1	.5	1	3[.25] 23[.75]	1	1	.5	1
12	14 [.5]	2[.5], 4[.5]	4 [1]	0	1	0	1	1	1	4[1]	1	1	1	1

13	23 [1.5]	17[.25] 23[1.5]	2[.5] 23[1]	.5	1	.5	1	.5	1	2[.5] 17[.25] 23[1]	.5	1	.5	1
14	15 [.5] 26 [1]	26[2]	26[1]	.5	1	.5	1	1	.5	26[1.5]	1	1	1	1
15	5 [1]	9[1]	9[1]	0	1	0	1	1	1	9[1]	1	1	1	1
16	18 [1]	16[.5] 21[.5]	16[1]	.5	1	1	1	1	1	16[.75] 21[.5]	1	1	1	1
17	10[.25]	19[1]	15[1]	0	0	0	.5	1	1	15[.5] 19[.5]	1	1	1	1
18	4[1] 5[.5]	25[.5]	14[1] 23[.5]	0	.5	0	1	.5	.5	14[1] 23[.5]	.5	.5	1	1
19	2[1]	2[.5], 21[.5]	2[.5], 21[.5]	.5	1	.5	1	1	1	2[.5] 21[.5]	1	1	1	1
20	8[1]	12[.5], 15[.5]	4[.5], 20[.5]	.5	1	0	1	.5	1	4[.5] 12[.5] 20[.5]	.5	1	.5	1
21	18[1]	22[1.5]	8 [1]	0	1	0	1		1	8[.75] 22[.75]	.5	1	.5	1
22	16[1]	17[1], 18[1]	17[0.5], 18[0.5]	1	.5	1	1	1	.5	17[0.75], 18[0.75]	1	1	1	1
23	15[1]	5[1], 18[1]	5[0.5] 18[1.5] 12[0.5]	.5	.5	.5	0	.5	1	5[0.5] 18[1.5] 12[0.5]	.5	1	1	1
24	18[1] 20[1]	22[.5], 28[1.5]	22[.5] 23 [1] 28[1]	0	1	0	1	1	1	22[.5] 23 [1] 28[1]	1	1	1	1
25	16[1]	16[1] 18[1]	16[1] 18[1]	1	.5	1	.5	1	1	16[1] 18[1]	1	1	1	1
26	8 [.5] 14[.5] 18[.5]	14[1]	15[.5] 16[1]	.5	1	.5	1		1	14[.75] 15[.5] 16[.5]	1	.5	1	1
27	14[1]	14[1]	14 [1]	1	1	1	1	1	1	14 [1]	1	1	1	1
28	4 [1] 8 [.5] 14 [.5]	5[.5], 14[.5]	5[.5] 8[.5] 14[1]	1	.5	1	1	.5	.5	5[.5] 8[.5] 14[1]	1	.5	1	1

29	14 [2]	5[.5], 17[.5], 13[.5],	5[1] 7[1]	.5	1	0	1	.5	1	5[.5] 7[.5] 13[.5] 17[.5]	1	1	.5	1
30	7 [1]	7[1], 23[.5]	7[1], 23[.5] 24[.5]	.5	1	.5	.5	1	1	7[1] 23[.5] 24[.5]	1	1	1	1
31	5 [.5]	5[.5], 22[.5]	11[.5], 22[.5]	.5	1		1	.5	1	5[.5] 11[.5] 22[.5]	.5	1	.5	1
32	8 [.5] 18 [.5]	6[1]	25[.5]	0	1		1		1	6[.5] 25[.5]	.5	1	.5	1
33	3 [1]	3 [1]	0	1	1					3[1]	1	1		
34	18 [.5]	18 [.5]	5[.5]	1	1		1		1	5[.25] 18 [.25]	.5	1	.5	1
35	12 [2]	1[1] 18[1]	1[1], 19[0.5] 20 [0.5]	0	1		1	1	1	1[1], 19[0.5] 20 [0.5]	1	1	1	1
				18.5/35 =53%	30.5/ 35=87	14.5/3 5=41	30.5/3 5=87	24/35 =69	32/35 =91%		30.5/35 =87%	33/35 =94%	28.5/35 =81%	34/35 =97%

Inter-rater agreement worksheet– 2 scorers

INTER-RATER AGREEMENT							
#8 Jack			Initial Agreement		Final Agreement		
Bit #	My scores	2nd scorer (Doug)	Quadrant Congruence	Weigh Agreement	Adjusted scores	Quadrant Congruence	Weight Agreement
1	4 [25] 10[.5] 21[.5] 24[.5]	4[.25] 10[.5] 21[.5]	.5	1	4 [.25] 10 [.5] 21 [.5]	1	1
2	7 [1] 26[.5]	7 [1] 26[.5] 8[1]	.5	1	7 [.75] 26 [.5] 8 [.75]	1	1
3	4 [1] 5[.25] 27[.5]	4 [1] 5[.25] 23[.5]	1	1	4 [1] 5 [.5] 27 [.5]	1	1
4	15[.25] 16 18 22 [1] 19 [1.5]	15[.25] 16[.25] 18 [.25] 22 [1] 19[.5]	1	1	15 [.25] 16 [.25] 18 [.25] 22 [1] 19 [1]	1	.5
5	2 [.5] 4 [.5] 16 [.5] 27 [1]	22[.5] 23[.5]	.5		2 [.5] 4 [.5] 22 [.5]	.5	1
6	16 [1] 4 [.25] 6 [.75]	16 [1] 4 [.25] 6 [.75]	1	1	16 [1] 4 [.25] 6 [.75]	1	1
7	11 [.25] 16 [.75]	16 [.5]	.5	1	16 [.75]	1	1
8	20 [1] 23 [.5]	20[.5]	.5	.5	20 [.5] 23 [.5]	.5	.5
9	3 [1]	3 [1]	1	1	3 [1]	1	1
10	8 [.5] 13 [1]	8 [.5] 13 [1]	1	1	8 [.5] 13 [1]	1	1

11	6 [1] 20 [.5]	4[1]	.5	1	4 [1.5]	1	1
12	8 [1] 10 [2]	8 [1] 10 [2]	1	1	8 [1] 10 [2]	1	1
13	4 [.25] 8 [.25]	8 [.5]	.5	1	8 [.5]	1	1
14	4 [1] 12 [.5] 26 [.5]	4 [1] 12 [.5] 22 [.5]	1	1	4 [1] 12 [.5] 22 [.5]	1	1
15	5 [1.75]	5 [1.75]	1	1	5 [1.75]	1	1
16	26 [3]	26 [3]	1	1	26 [3]	1	1
17	18 [1.5] 25 [1.5]	18 [1.5] 25 [1] 22[.5]	1	1	18 [1.5] 22 [.5] 25 [1]	1	1
18	3 [.25] 5 [1.25] 14 [1] 28 [.5]	3 [.25] 5 [1.25] 14 [1] 28 [.5]	1	1	3 [.25] 5 [1.25] 14 [1] 28 [.5]	1	1
19	2 [1] 22 [2]	2 [1] 22 [2]	1	1	2 [1] 22 [2]	1	1
20	15 [.5] 16 [.5] 27 [.5] 28 [.5]	15 [.5] 16 [.5] 27 [.5] 28 [.5] 22[.5]	1	1	15 [.5] 16 [.5] 22 [.5] 27 [.5] 28 [.5]	1	1
21	6 [.5] 12 [1]	22[2]		1	6[.5] 12[.5] 22[.5]	.5	1
22	7 [1.5] 24 [1]	7 [1.5] 24 [1]	1	1	7 [1.5] 24 [1]	1	1
23	5 [.5] 24 [.5]	5 [.5] 24 [.5]	1	1	5 [.5] 24 [.5]	1	1
24	18 [1]	18 [1]	1	1	18 [1]	1	1
25	6 [1.5]	7[1]	1	1	6 [.5] 7 [.5]	1	1

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